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AS-interface System Description

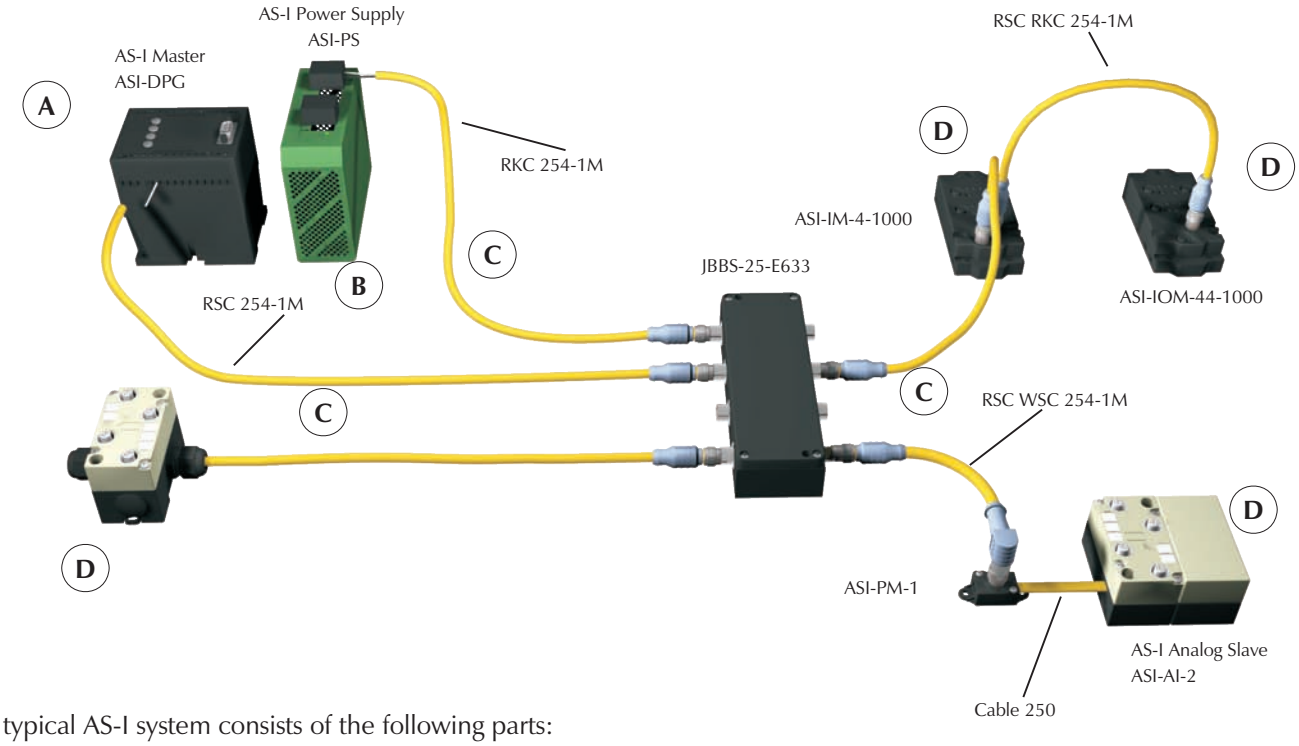
AS-interface (commonly referred to as AS-I) is a low-level I/O interface system. It was originally intended to be a simple, low cost system that would be easy to install and maintain. With that philosophy in mind, the original developers designed AS-I as a discrete-only two-wire system. It incorporated features like automatic station addressing, and power and data were carried on a single untwisted pair of wires.

As the demand for AS-I grew, so did the demand for more complex devices. The next major version of AS-I, v2.1, extended the protocol to include seamless transfer of analog data, transmission of simple diagnostic data and an extended addressing scheme that effectively doubled the number of stations allowed on the network. The newest version of AS-I, v3.0, has gone even further, allowing more options for analog data and much more detailed diagnostic information to be communicated. New versions of AS-I are backward compatible and support slaves from earlier versions. Additionally, AS-I was one of the first network systems to incorporate a safety protocol, allowing emergency-stop and machine-stop systems to be seamlessly integrated with the network.

AS-I can be used as a stand alone network or can be connected to a higher level system, such as DeviceNet™ or PROFIBUS®-DP, through a gateway. The gateway acts as a slave to the higher system and a master to the AS-I system.

Typical System Configuration

Basic Parts List



A typical AS-I system consists of the following parts:

A = Master
B = AS-I Power Supply
C = AS-I Cable (See N2)
D = AS-I I/O Modules (or Slaves)

AS-I stations require a network master (also called a scanner) to interface the stations to the host controller. In some cases the scanner and controller are packaged as a single unit; in other cases the scanner acts as a gateway to a higher level network or to a PLC. **TURCK** AS-I stations are designed to be fully compatible with AS-I equipment from other manufacturers.

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TURCK & Bihl+Wiedemann

Bihl+Wiedemann, considered the "AS-I masters", is the leading supplier of AS-I master and gateway products. Their broad product range enables users to select from a wide variety of higher level fieldbuses or PC/PLC control solutions. Additionally, Bihl+Wiedemann provides a wide variety of analog AS-I slaves, PC-board level devices for OEMs and sophisticated AS-I accessory products. **TURCK** has partnered with Bihl+Wiedemann to distribute and support their products in North America.

Cordsets

TURCK offers a complete line of molded AS-I cordsets to facilitate network installation, resulting in a faster start-up and fewer wiring errors. The bus and drop cables are specially designed foil-shielded, high-flex cables with very low inductance and capacitance to minimize propagation delay time. AS-I cables consist of a single untwisted and unshielded wire pair that carries both 30 VDC power and the network data. AS-I was originally designed for use with flat cable using an insulation displacement connection technology, but the use of round cables with sealed connectors has become more common. **TURCK** provides both cable options.

Diagnostics

AS-I has limited field diagnostic capability, due to the limited amount of data transferred in each message. Although with v2.1, a peripheral fault bit can be reported by an AS-I station to indicate a fault with a field device. This allows the user to easily determine the location of a system fault down to the station level. AS-I v3.0 has even more diagnostic capabilities, allowing asynchronous "mailbox" messaging to receive more detailed error information.

Bihl+Wiedemann AS-I masters provide comprehensive information about the status of each station on the network by using register based tables to display each occupied network address.

Addressing

The original AS-I system allowed only 4 bits of data to be transferred in each message for a fast and efficient data transfer system. Slaves could be addressed from one to 31, but with the growth of the network more than 31 stations were often required. Beginning with AS-I v2.1 stations were available with "AB" addressing. This scheme allows the station to be addressed from 1A to 31A or 1B to 31B, with 62 total slaves with four discrete inputs and three discrete outputs each. The extended address range (and the three outputs) is achieved by using one output bit as an AB address.

When both A and B addressed slaves are on the same network, they are scanned on alternating cycles (first all the A slaves are scanned, then all the B slaves). Both AB and single-address slaves can be on the same network. In this case the single-address (non AB style) slaves are scanned every cycle. It's important to note that not all v2.1 slaves use this addressing scheme, although it is often referred to as v2.1 addressing.

Analog Data

Although the original AS-I version only allowed discrete data transfer, v2.1 and higher support seamless analog data transfer. This is accomplished by sending a portion of the analog data on each of several consecutive network cycles; for example, a 16-bit word of data requires seven network cycles. Further, AS-I v3.0 allows analog data to be transferred in a single cycle by consuming more than one address for the analog slave.

Communication Rate/Cycle Time

AS-I communicates at a fixed data rate of 167 kbps. The system's cycle time is very predictable because of the simple communication scheme and fixed data rate. For example, a network with 31 slaves will have a cycle time of less than 5 ms. A network with 62 slaves (all A and B addresses used) will have a cycle time of less than 10 ms. If analog slaves are being used, the cycle time will change to account for the fact that an analog word takes multiple network cycles to transmit.

Maximum Ratings

The AS-I system uses a freeform layout topology. Up to 100 m of cable can be used on a segment before a repeater or tuner needs to be installed to allow the network to be extended beyond the 100 m limit. No terminating resistors are required.

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AS-interface Masters and Gateways

TURCK offers a wide variety of AS-I masters and gateways manufactured by Bihl+Wiedemann. These devices control communication on the AS-I network and provide a logical connection from the slave and I/O devices in the field to the host. The terms “master” and “gateway” as used here differ in the following way: A master is an AS-I controller that provides a direct link to the host (PLC, PC, DCS etc.); a gateway is an AS-I master, while also being a slave to a higher-level system (such as DeviceNet™, PROFIBUS®-DP or Ethernet). In the case of a gateway, the AS-I information is compiled by the AS-I master and communicated through the higher-level system as a standard slave data map.

AS-I masters and gateways are available in several different designs. The latest gateway versions incorporate stainless steel housing, support DeviceNet, EtherNet/IP™, Modbus-TCP, PROFIBUS-DP, CANopen and Modbus as higher-level networks, and are available with one or two AS-I masters. These gateways also feature AS-I v3.0 software, and a graphical display for configuration and maintenance with no need for a PC. Other new features include a direct serial connection to the AS-I Control Tools software (requires a connection cable that can be ordered with the software: part number ASI-CT-SS BW1602), ground fault detection and duplicate address detection.

Gateways for some higher-level systems are also available with nylon housing. Some of these feature a graphical display, while others contain a two-digit display for configuration. These gateways may be connected to the AS-I Control Tools software through the higher-level network interface by using a “master simulator”.

Masters are available as cards for Allen-Bradley® ControlLogix®, CompactLogix and MicroLogix 1500 PLCs, as well as in several different PC control form factors. Stand-alone masters with RS232, RS485 and RS422 serial connections are also available.

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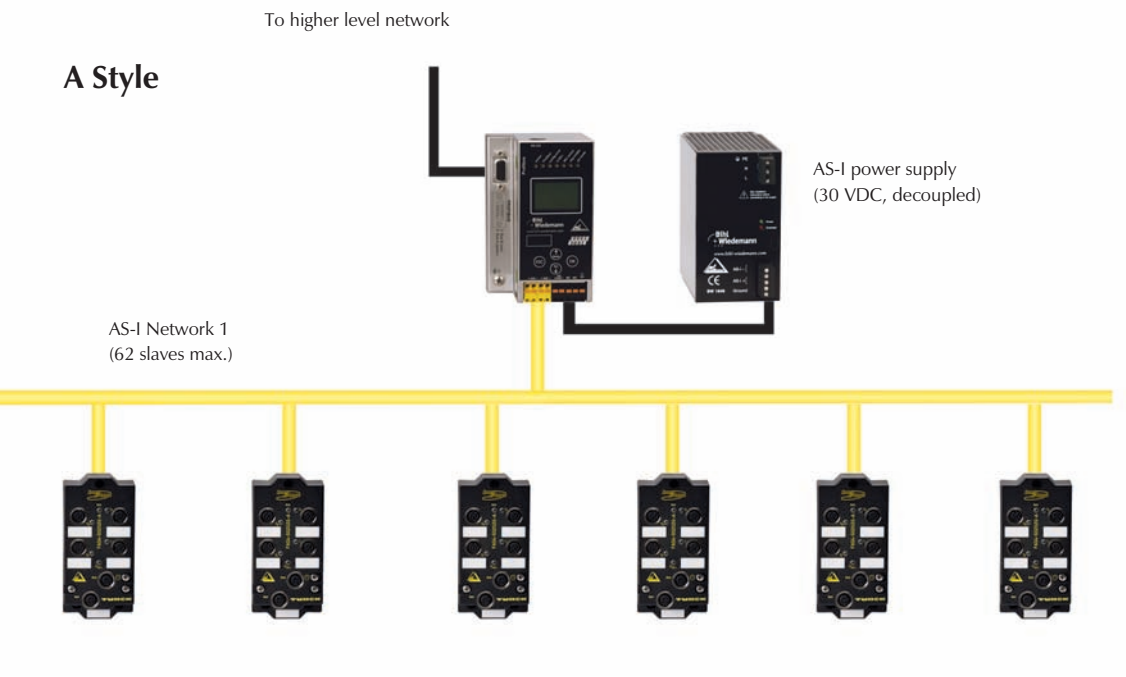
Features

AS-I masters and gateways are available with one or two supported AS-I networks, referred to as “single masters” and “double masters”. Double masters can be used to save cost and cabinet space where the system being installed is too large (physically or due to the number of slaves) for one AS-I network. The master and power supply may be connected anywhere along the network, but should be located next to each other. Slaves and repeaters should not be connected between the master and the power supply, as doing so disables some diagnostic features (such as duplicate address detection and ground fault detection). An example of a system with the “A-style” power supply (gateway is powered from the AS-I power supply) is shown here.



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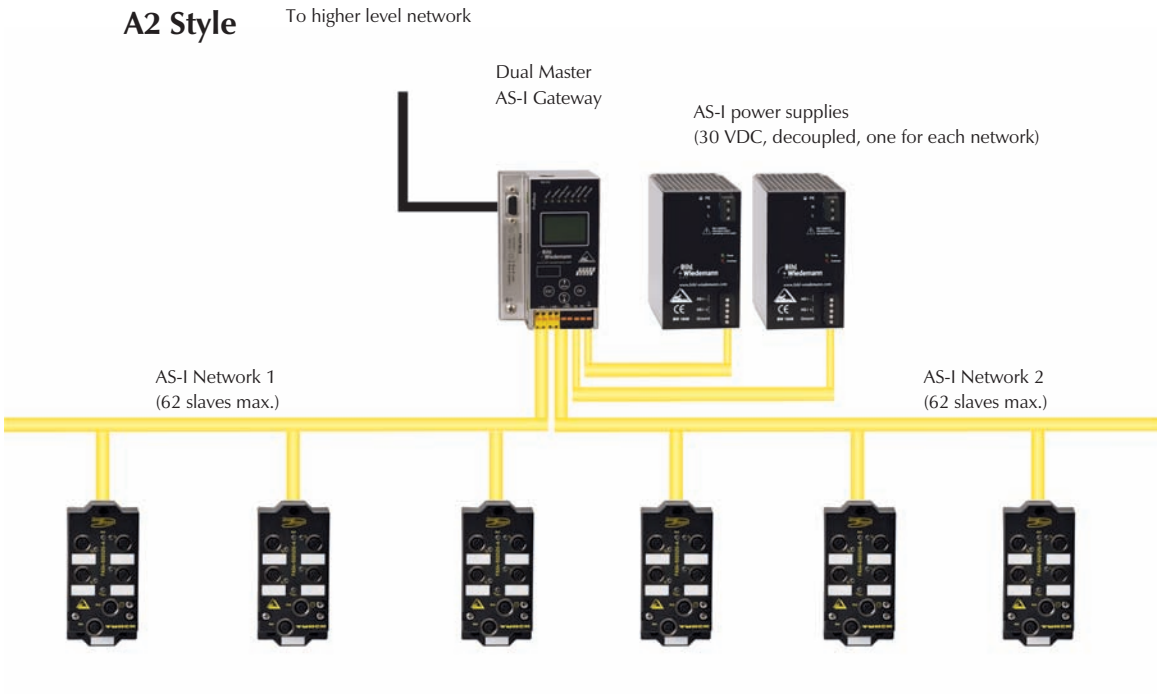
Alternatively, two AS-I networks could be connected to one dual master, as shown. The dual master consists of two AS-I masters and one connection to the higher-level system (or backplane). Note that each AS-I network has its own power supply, but combining the two masters into one unit conserves cabinet space. This is the "A2" power supply configuration (gateway is powered from the AS-I supplies for each network).

A2 Style



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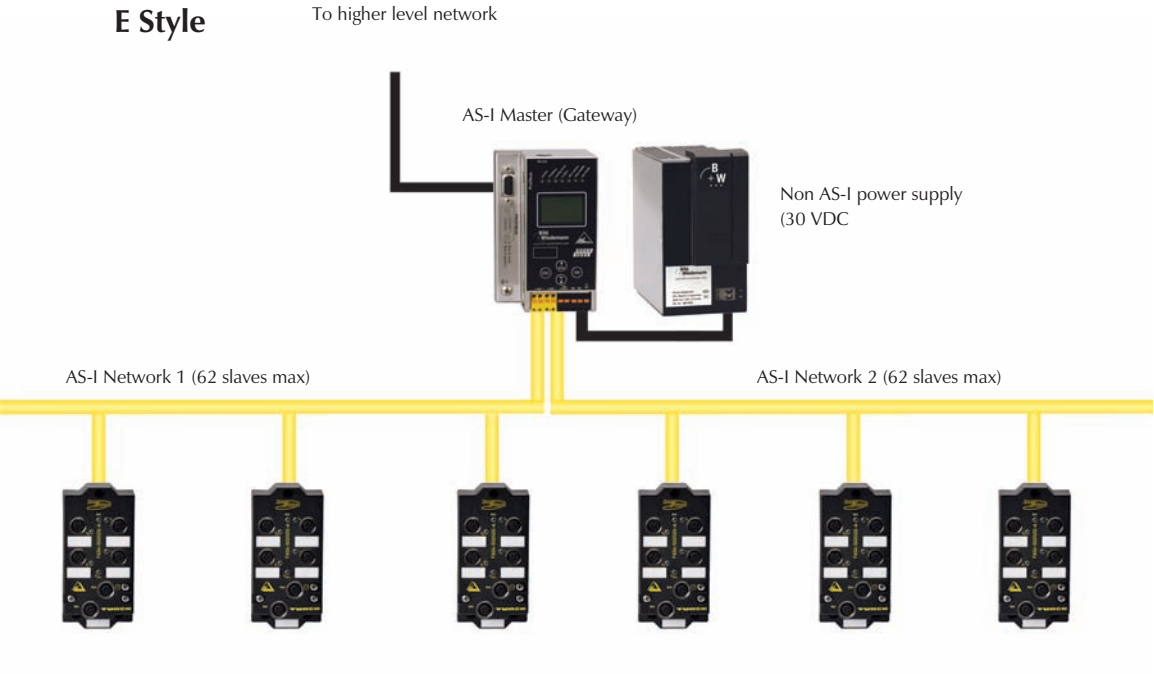
A third option is to use a dual master with a single power supply (E-style power configuration). In this case, the master contains the necessary AS-I power supply decoupling circuit for each network. Therefore one 30 VDC power supply can be used for both networks saving even more space and product cost. More than one of these double masters can be supplied from the same 30 VDC source.



Addressing

Network addresses for all AS-I gateways are programmed via the push buttons on the face of the gateway. For more details, please consult the user manual for the specific gateway in question. Manuals can be downloaded from www.turck.com.

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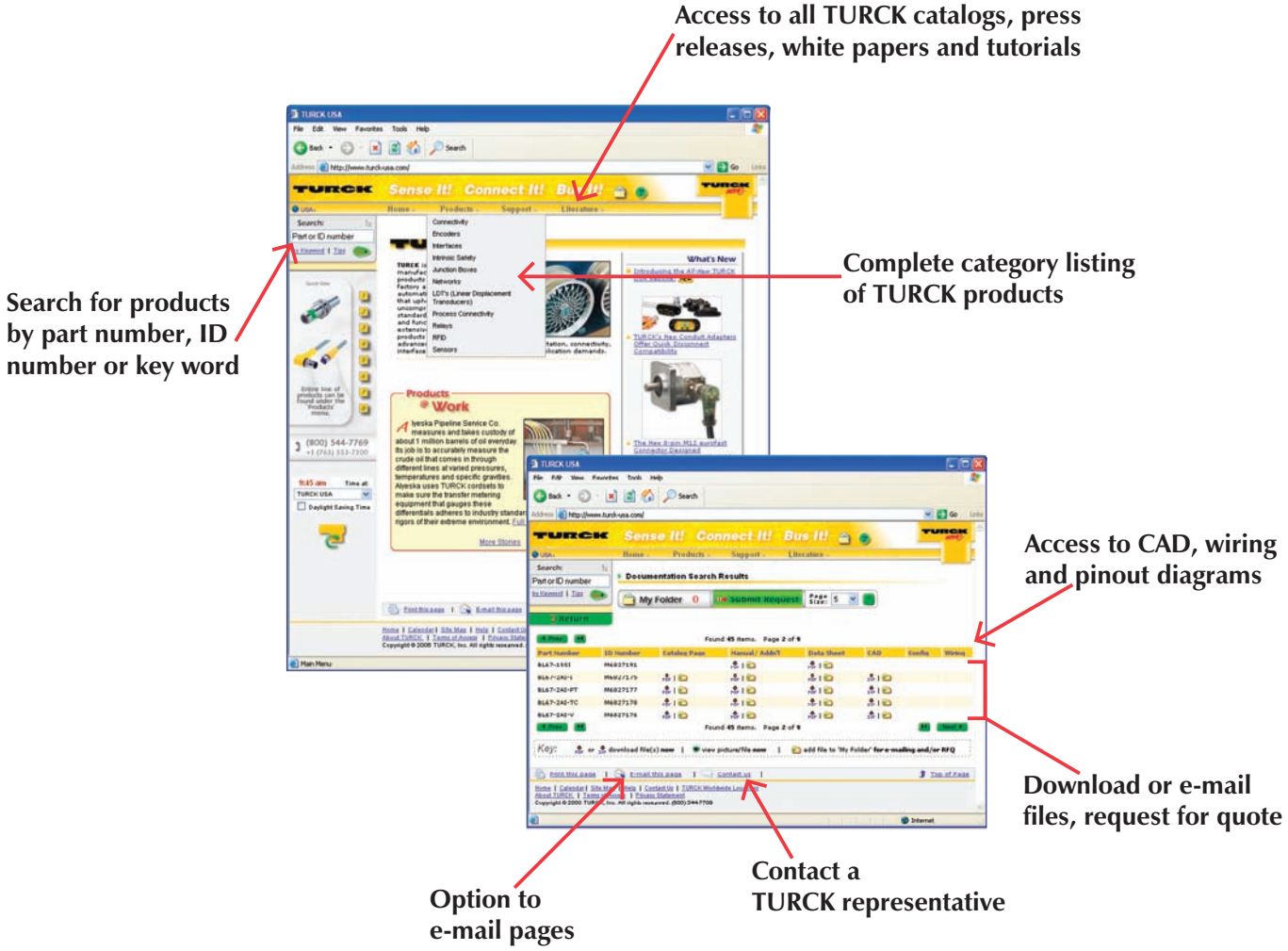
TURCK's USA website is your most complete and up-to-date source for product documentation, CAD files and more. Search results produce downloadable documentation or request for quote (RFQ). Additional product information or CAD files are easily requested and promptly filled.

Visit our site for new product releases, approvals, white papers, application support and more.


Access to all TURCK catalogs, press releases, white papers and tutorials
Search for products by part number, ID number or key word
Complete category listing of TURCK products
Access to CAD, wiring and pinout diagrams
Download or e-mail files, request for quote
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AS-interface Selection Guide

Masters	Higher-Level	Pages
	Allen-Bradley	M11
	DeviceNet	M13
	Ethernet	M15 - M17
	PROFIBUS-DP	M19 - M23
	CANopen	M25
	Modbus	M27
	Modbus Plus	M29
	CC-Link	M31
	RS232	M33
	RS485	M33
	RS422	M33
	PCI	M35
	ISA	M35
	PC/104	M35
	OEM	M81
	Safety Monitor	M99

Power	Item	Style	Pages
	Supplies	Decoupled	M93
		Non-Decoupled	M95
	Decoupler	N/A	M98

Repeater	M75 - M78
Coupler	M103
Tuner	M79

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AS-interface Selection Guide

Power	Item	Style	Pages
AIM	Discrete	Input	M37
		Output	M45
		Input & Output	M39 - M45
Conduit Body	Discrete	Input & Output	M47
IP 20 Slice	Analog	Input	M49 - M55
		Output	M57 - M61
IP65 Block	Analog	Input	M65
		Output	M69
	Special Function	Code Block	M73
		Counter	M71
OEM	Discrete	Input & Output	M85 - M91
	Safety	Input & Output	M101

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AS-I Masters for AB PLCs

ASI-SCAN-AB-BW1488
ASI-SCAN-AB BW1416
ASI-SCAN-AB/ACT BW1610
ASI-SCAN-AB/ACT BW1611

- **PLC AS-I Masters**
- **Fit Standard Allen-Bradley Backplanes**
- **Analog and Discrete Data Support**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 70 mA from each AS-I supply, 390 mA from 5.1 V backplane supply, 150 mA from 24 V backplane supply (BW1488, BW1611) 100 mA from AS-I supply, 450 mA from 5 V backplane supply (BW1416, BW1610)

Power Distribution

- Power is drawn both from AS-I and the backplane

Mechanical

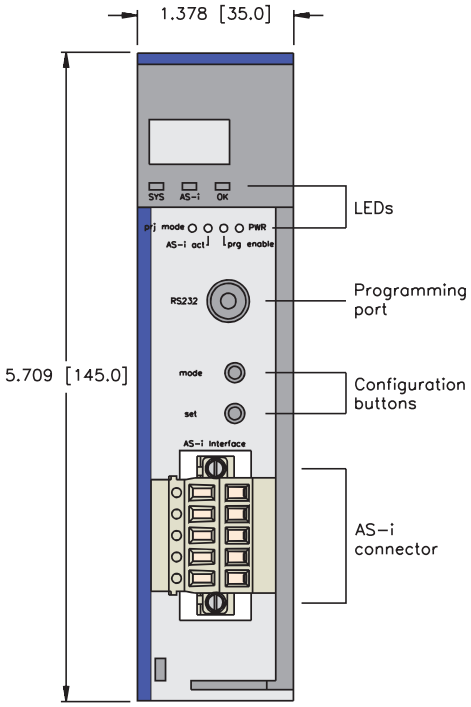
- Operating Temperature: 0 to +55 °C (+32 to +131°F)
- Protection: IP 20

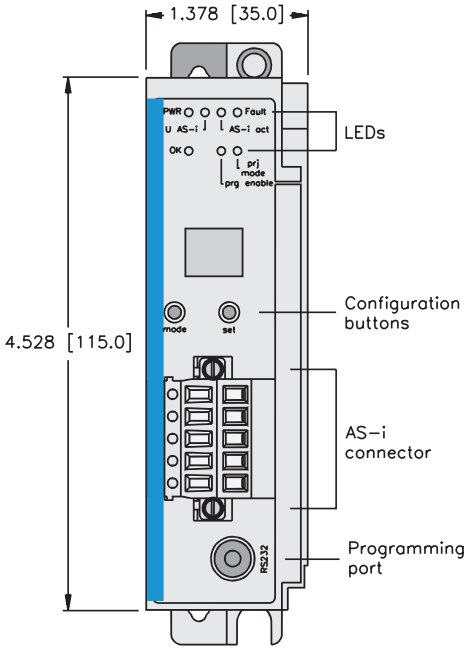
Diagnostics (Logical)

- AS-I I/O faults are reported via the peripheral fault bit for each slave (v2.1 and higher)

Diagnostics (Physical)

- LEDs to indicate status of AS-I and backplane communication and power supply





Note: BW1610 is BW1416 with configuration software. BW1611 is BW1488 with configuration software.

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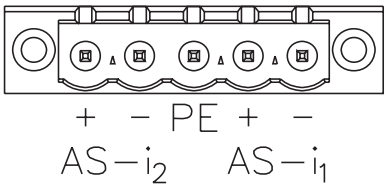
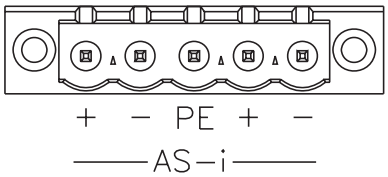
Part Number	PLC Format	AS-I Version	Connection Diagram	# of AS-I Masters	Included Software
ASI-SCAN-AB-BW1488	ControlLogix	2.1	A	2	
ASI-SCAN-AB BW1416	CompactLogix/MicroLogix1500	2.1	B	1	
ASI-SCAN-AB/ACT BW1610	CompactLogix/MicroLogix1500	2.1	B	1	X
ASI-SCAN-AB/ACT BW1611	ControlLogix	2.1	A	2	X

Input/Output Connectors

A



B



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AS-I Gateways in Stainless Steel

ASI-DNG-SS BW1818*
ASI-DNG-SS BW1819*
ASI-DNG-SS BW1820*
ASI-DNG-SS-C1D2 BW1824
ASI-DNG-SS-C1D2 BW1825
ASI-DNG-SS-C1D2 BW1826

* not ETL Listed

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
  200 mA from V_{AS-i1}, 70mA from V_{AS-i2} (Power Supply A2)
  250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: According to EN 61131-2

Material

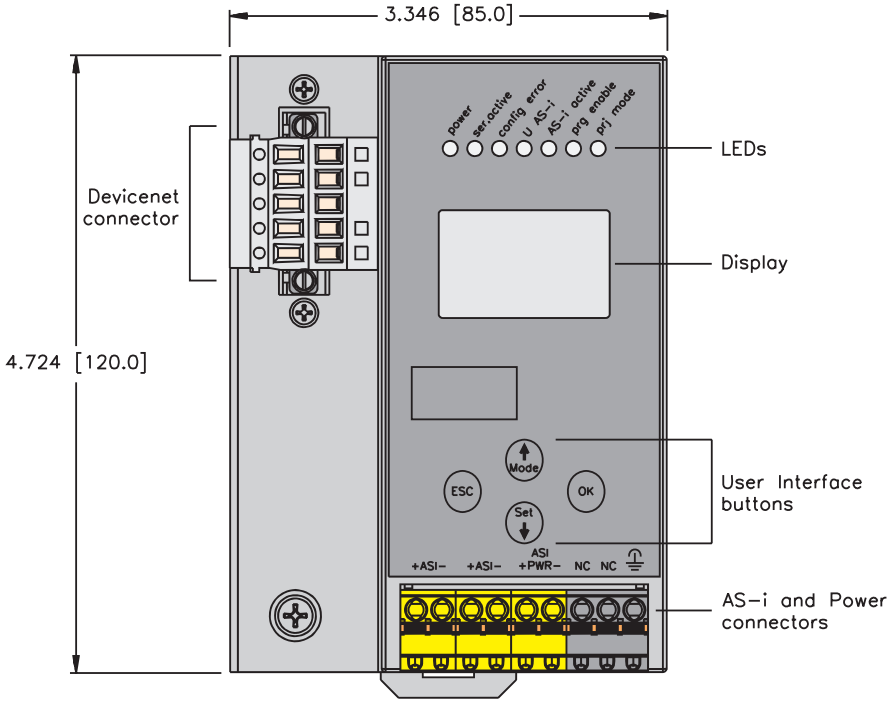
- Housing: Stainless Steel

Diagnostics (Logical)

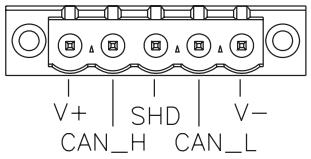
- AS-I diagnostic data is available via Network interface

Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply



DeviceNet Connector



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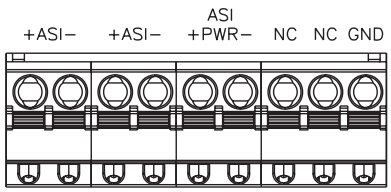
Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters
ASI-DNG-SS BW1818	DeviceNet	A	3.0	A	1
ASI-DNG-SS BW1819	DeviceNet	A2	3.0	A2	2
ASI-DNG-SS BW1820	DeviceNet	E	3.0	E	2
ASI-DNG-SS-C1D2 BW1824*	DeviceNet	A	3.0	A	1
ASI-DNG-SS-C1D2 BW1825*	DeviceNet	A2	3.0	A2	2
ASI-DNG-SS-C1D2 BW1826*	DeviceNet	E	3.0	E	2

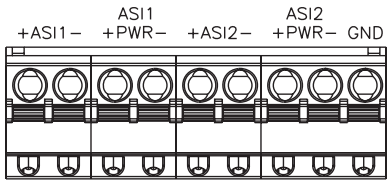
* Approved for use in Class 1, Division 2 areas

Input/Output Connectors

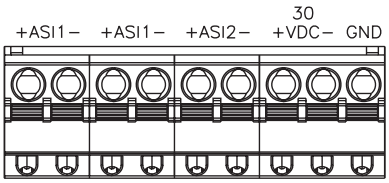
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

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Modbus TCP Gateways in Stainless Steel

ASI-ENG-SS BW1650*
ASI-ENG-SS BW1651*
ASI-ENG-SS BW1652*
ASI-ENG-SS-C1D2 BW1659
ASI-ENG-SS-C1D2 BW1660
ASI-ENG-SS-C1D2 BW1661

* not ETL Listed

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
  200 mA from V_{AS-i1}, 70mA from V_{AS-i2} (Power Supply A2)
  250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

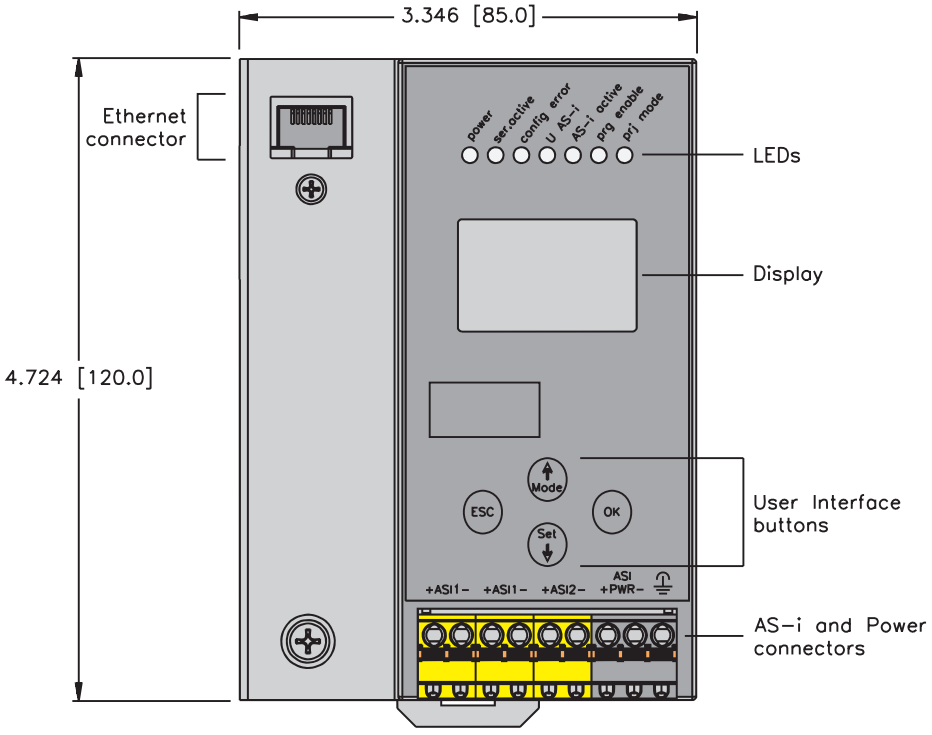
- Housing: Stainless Steel

Diagnostics (Logical)

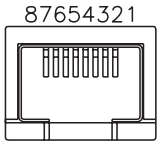
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



RJ45 Ethernet Standard



1 = WH/or (+TX)
2 = OR (-TX)
3 = WH/GN (+RX)
4 = BU
5 = WH/BU
6 = GN (-RX)
7 = WH/BN
8 = BN

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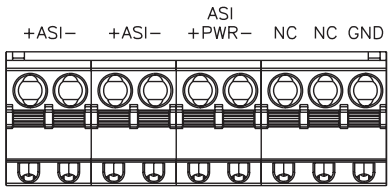
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-ENG-SS BW1650	ModbusTCP	A	3.0	1	X	X
ASI-ENG-SS BW1651	ModbusTCP	A2	3.0	2	X	X
ASI-ENG-SS BW1652	ModbusTCP	E	3.0	2	X	X
ASI-ENG-SS-C1D2 BW1659*	ModbusTCP	A	3.0	1		
ASI-ENG-SS-C1D2 BW1660*	ModbusTCP	A2	3.0	2		
ASI-ENG-SS-C1D2 BW1661*	ModbusTCP	E	3.0	2		

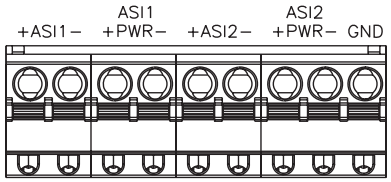
* Approved for use in Class 1, Division 2 areas

Input/Output Connectors

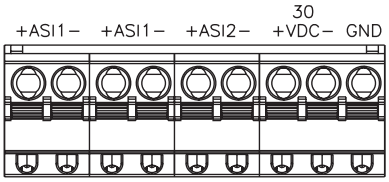
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com

AS-I Ethernet/IP Gateways in Stainless Steel

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

ASI-EIPG-SS BW1828*
ASI-EIPG-SS BW1829*
ASI-EIPG-SS BW1833*
ASI-EIPG-SS-C1D2 BW1834
ASI-EIPG-SS-C1D2 BW1835
ASI-EIPG-SS-C1D2 BW1836

* not ETL listed

Electrical

- Operating Current: 300 mA from VAS-$_{i}$ (Power Supply A)
  200 mA from VAS-$_{i1}$, 70mA from VAS-$_{i2}$ (Power Supply A2)
  250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

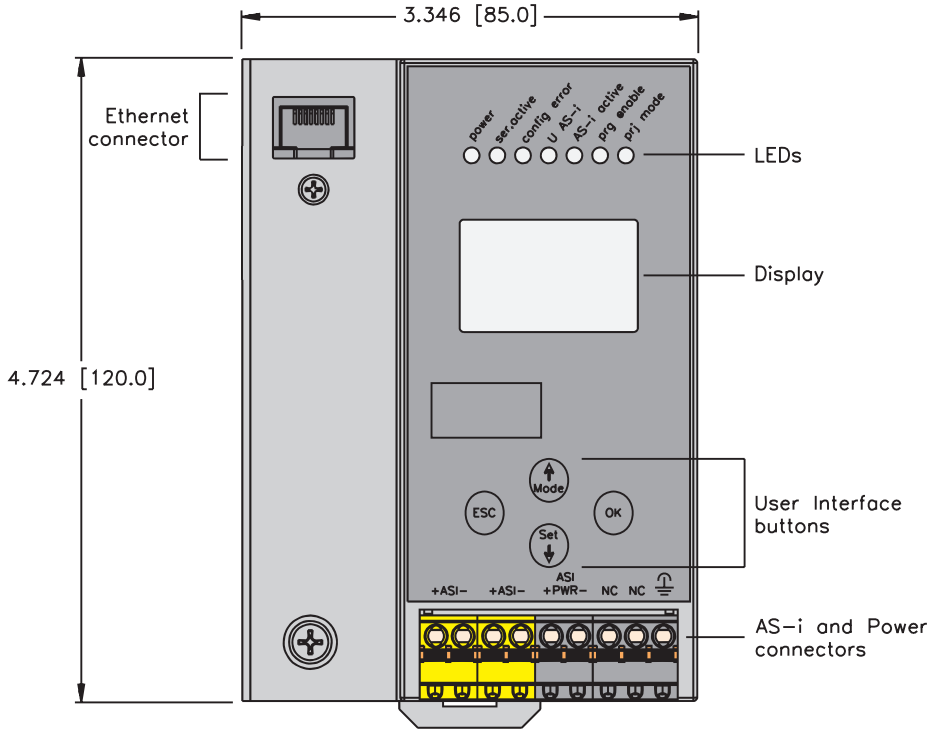
- Housing: Stainless Steel

Diagnostics (Logical)

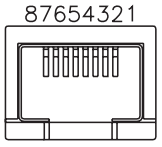
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



RJ45 Ethernet Standard



1 = WH/or (+TX)
2 = OR (-TX)
3 = WH/GN (+RX)
4 = BU
5 = WH/BU
6 = GN (-RX)
7 = WH/BN
8 = BN

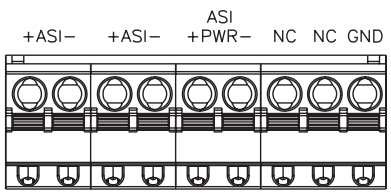
Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-EIPG-SS BW1828	Ethernet/IP	A	3.0	1	X	X
ASI-EIPG-SS BW1829	Ethernet/IP	A2	3.0	2	X	X
ASI-EIPG-SS BW1833	Ethernet/IP	E	3.0	2	X	X
ASI-EIPG-SS-C1D2 BW1834*	Ethernet/IP	A	3.0	1		
ASI-EIPG-SS-C1D2 BW1835*	Ethernet/IP	A2	3.0	2		
ASI-EIPG-SS-C1D2 BW1836*	Ethernet/IP	E	3.0	2		

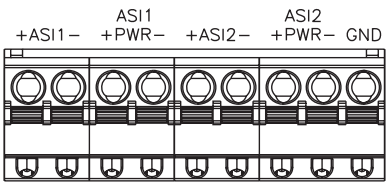
Approved for use in Class 1, Division 2 areas

Input/Output Connectors

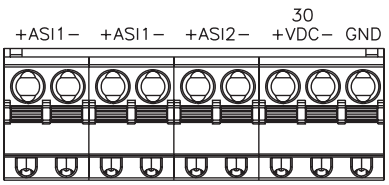
A



A2



E



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AS-I ProfiNET Gateways in Stainless Steel

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

ASI-PNG-SS BW1912

Electrical

- Operating Current: 300 mA from V_{AS-I} (Power Supply A)

Power Distribution

- From AS-I supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

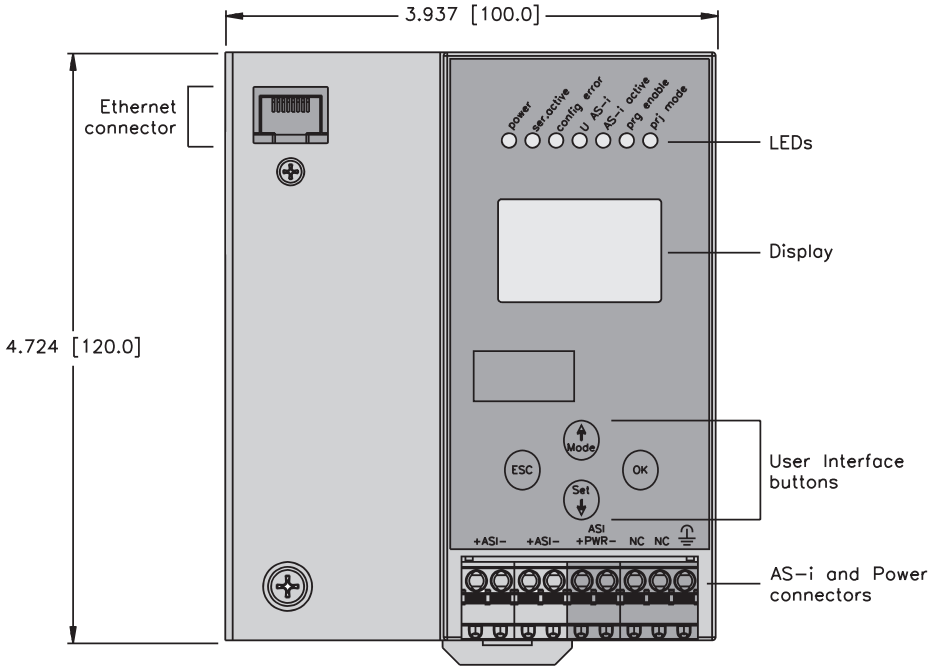
- Housing: Stainless Steel

Diagnostics (Logical)

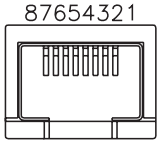
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



RJ45 Ethernet Standard



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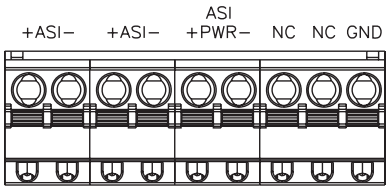
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-PNG-SS BW1912	PROFINET	A	3.0	1	X	X

Input/Output Connectors

A



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AS-I Profibus-DP Gateways in Stainless Steel

ASI-DPG-SS BW1567*
ASI-DPG-SS BW1568*
ASI-DPG-SS BW1569*
ASI-DPG-SS-SE BW1773*
ASI-DPG-SS-SE BW1774*
ASI-DPG-SS-C1D2 BW1653
ASI-DPG-SS-C1D2 BW1654
ASI-DPG-SS-C1D2 BW1655

* Not ETL Listed

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
  200 mA from V_{AS-i1}, 70mA from V_{AS-i2} (Power Supply A2)
  250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

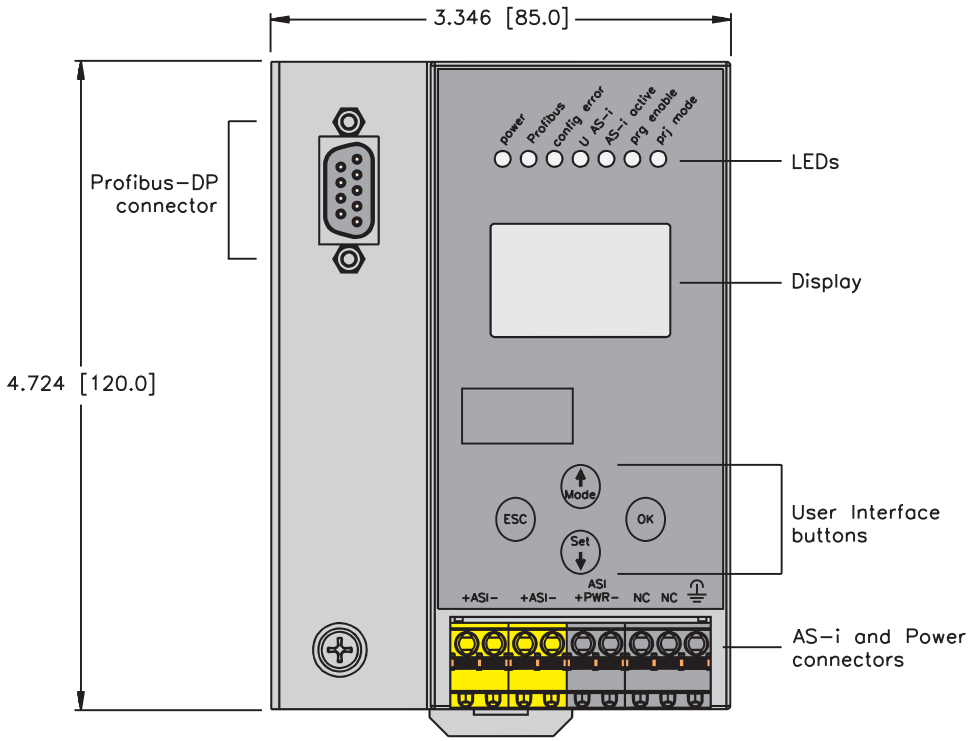
- Housing: Stainless Steel

Diagnostics (Logical)

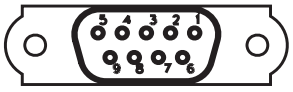
- Health of AS-I network is available via Proximus-DP interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



PROFIBUS-DP Connector



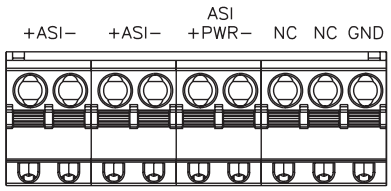
1 = Shield
3 = BUS_B
5 = DGnd
6 = +5 VDC
8 = BUS_A

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com

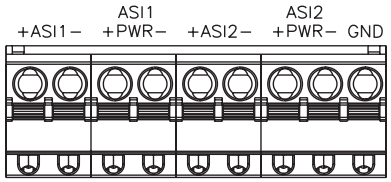
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-DPG-SS BW1567	PROFIBUS-DP	A	2.1	1	X	X
ASI-DPG-SS BW1568	PROFIBUS-DP	A2	2.1	2	X	X
ASI-DPG-SS BW1569	PROFIBUS-DP	E	2.1	2	X	X
ASI-DPG-SS-SE BW1773	PROFIBUS-DP	A	2.1	1		
ASI-DPG-SS-SE BW1774	PROFIBUS-DP	A2	2.1	2		
ASI-DPG-SS-C1D2 BW1653*	PROFIBUS-DP	A	3.0	1		
ASI-DPG-SS-C1D2 BW1654*	PROFIBUS-DP	A2	3.0	2		
ASI-DPG-SS-C1D2 BW1655*	PROFIBUS-DP	E	3.0	2		

* Approved for use in Class 1, Division 2 areas

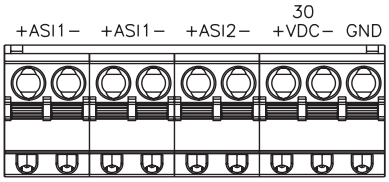
A



A2



E



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AS-I PROFIBUS-D Economy Gateways

- **AS-I v3.0 Supported**
- **LED Display**
- **PROFIBUS-DP Support**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: <300 mA from AS-I

Power Distribution

- From AS-I supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Stainless Steel

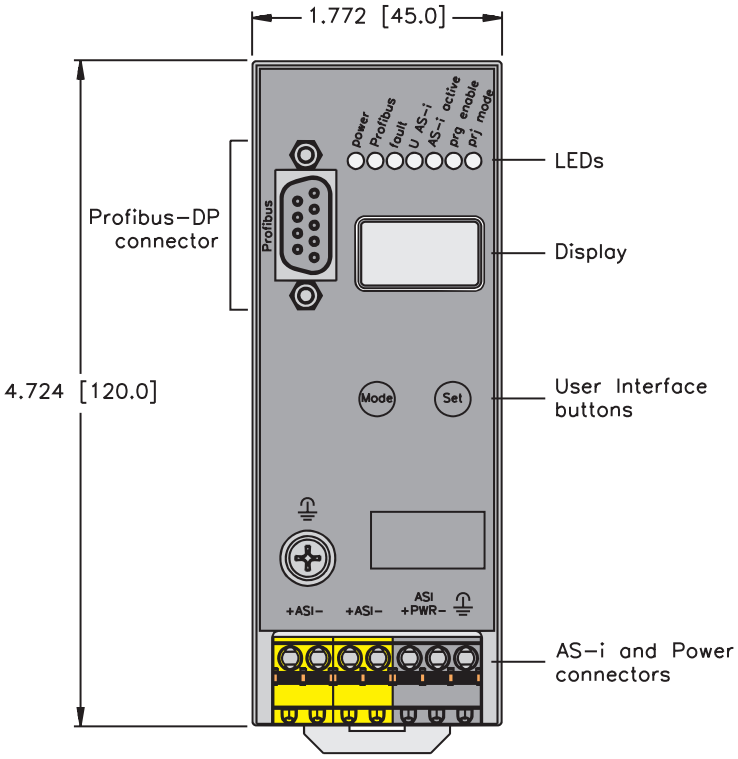
Diagnostics (Logical)

- AS-I diagnostic data is available via Network interface

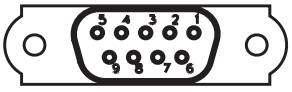
Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply

ASI-DPG-SS-B BW1746



PROFIBUS-DP Connector

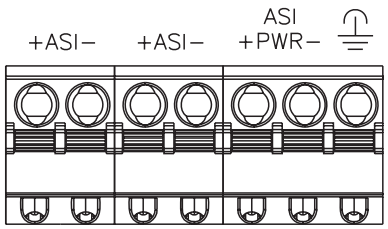


1 = Shield
3 = BUS_B
5 = Gnd
6 = +5VDC
8 = BUS_A

Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters
ASI-DPB-SS BW1746	PROFIBUS-DP	A	2.1	A	1

Input/Output Connectors

A



Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com

AS-I CANopen Gateways in Stainless Steel

ASI-COG-SS BW1821
ASI-COG-SS BW1822
ASI-COG-SS BW1823

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
  200 mA from V_{AS-i1}, 70mA from V_{AS-i2} (Power Supply A2)
  250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
  From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

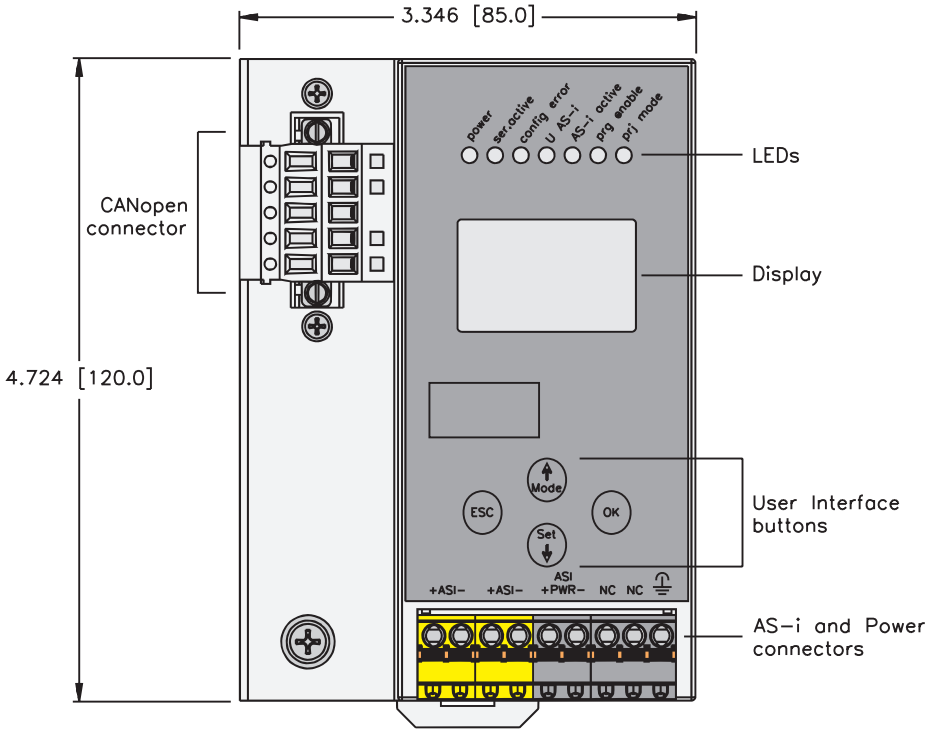
- Housing: Stainless Steel

Diagnostics (Logical)

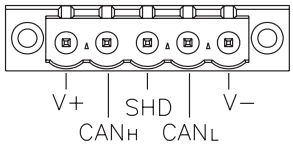
- Health of AS-I network is available via CANopen interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



CANopen Connector



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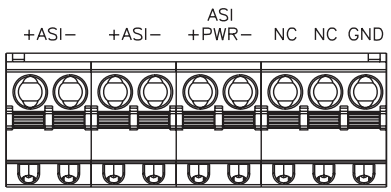
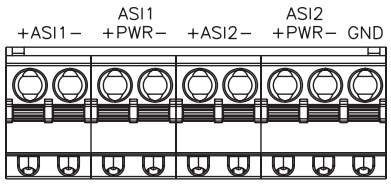
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-COG-SS BW1821	CANopen	A	3.0	1	X	X
ASI-COG-SS BW1822	CANopen	A2	3.0	2	X	X
ASI-COG-SS BW1823	CANopen	E	3.0	2	X	X

Input/Output Connectors

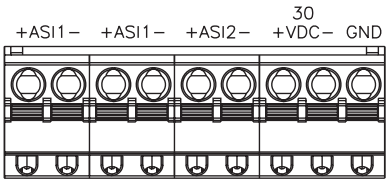
A



A2



E



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AS-I Modbus Gateways in Stainless Steel

ASI-MBG-SS BW1641*
ASI-MBG-SS BW1642*
ASI-MBG-SS BW1643*
ASI-MBG-SS-C1D2 BW1656
ASI-MBG-SS-C1D2 BW1657
ASI-MBG-SS-C1D2 BW1658

* not ETL listed

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
  200 mA from V_{AS-i1}, 70mA from V_{AS-i2} (Power Supply A2)
  250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
  From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

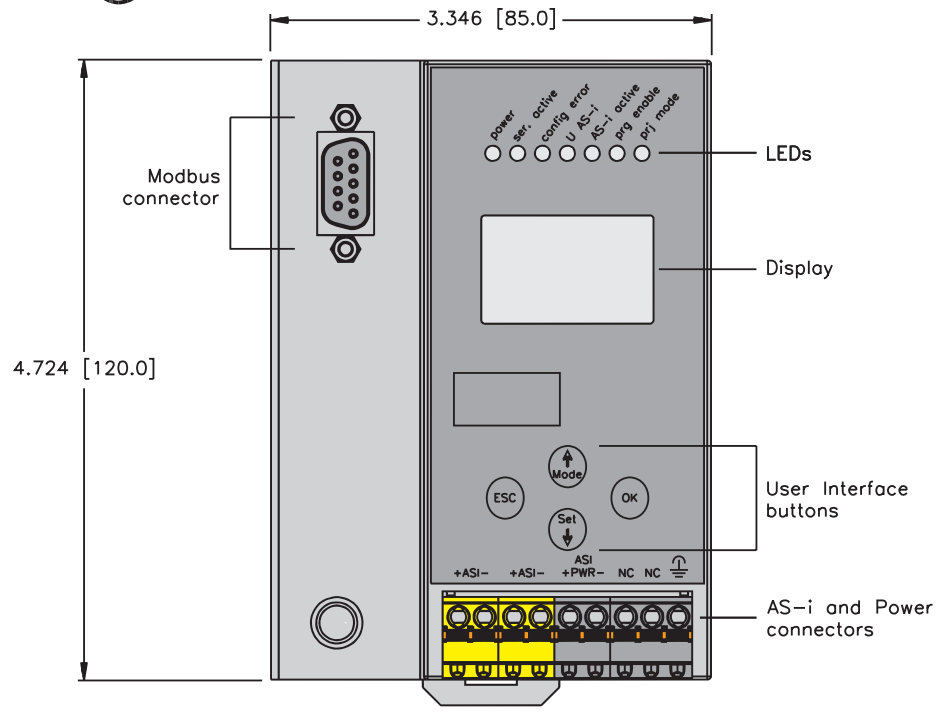
- Housing: Stainless Steel

Diagnostics (Logical)

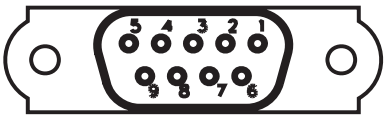
- Health of AS-I network is available via Modbus interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



RS485 Connector



3 = BUS_A
8 = BUS_B

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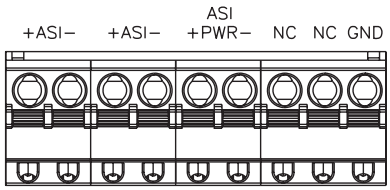
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-MBG-SS BW1641	Modbus	A	3.0	1	X	X
ASI-MBG-SS BW1642	Modbus	A2	3.0	2	X	X
ASI-MBG-SS BW1643	Modbus	E	3.0	2	X	X
ASI-MBG-SS-C1D2 BW1656*	Modbus	A	3.0	1		
ASI-MBG-SS-C1D2 BW1657*	Modbus	A2	3.0	2		
ASI-MBG-SS-C1D2 BW1658*	Modbus	E	3.0	2		

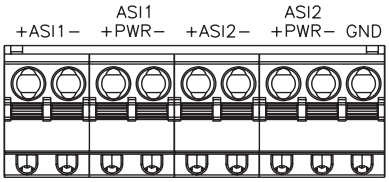
* Approved for use in Class 1, Division 2 areas

Input/Output Connectors

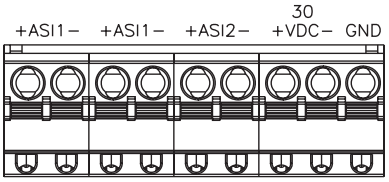
A



A2



E



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AS-I Gateways

- **Connect to Higher-Level Network**
- **Multiple Networks Supported**
- **2-Digit Display**
- **Integrated AS-I Diagnostics**

ASI-MBPG BW1583

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)

Power Distribution

- From AS-I supply for each network

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

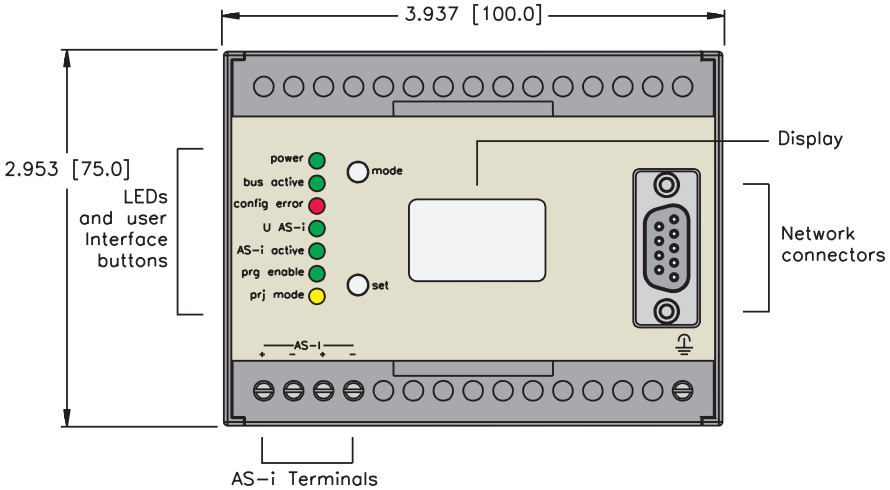
- Housing: Plastic

Diagnostics (Logical)

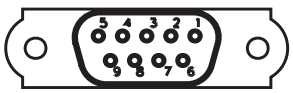
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply



Modbus Plus Connector



1 = Shield
2 = Data
3 = Data

ASI-MBPG BW1583

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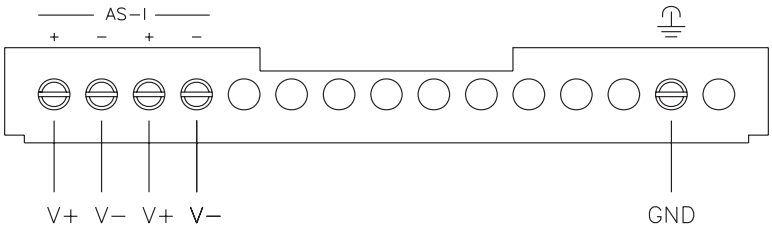
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-MBPG BW1583	Modbus Plus	A	2.1	1		

AS-I Connectors

A



A - Single AS-I network is powered by and AS-I power supply

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AS-I Gateways

ASI-DPG BW1253
ASI-DPG BW1371
ASI-CCG BW1435

- **AS-I v2.1 Supported**
- **2-Digit Display**
- **IP 65 Protection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I}

Power Distribution

- From AS-I supply for each network

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 65

Material

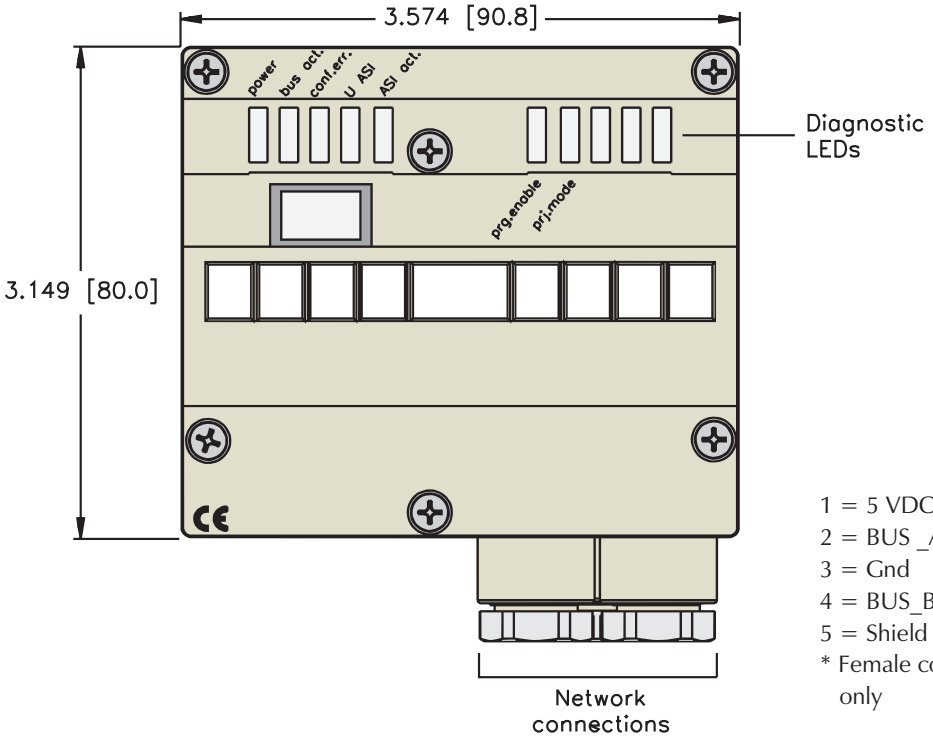
- Housing: Plastic

Diagnostics (Logical)

- Health of AS-I network is available via Network interface

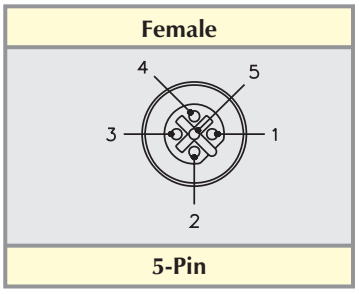
Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply



1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

PROFIBUS *eurofast*® Pinouts



ASI-DPG BW1371 only

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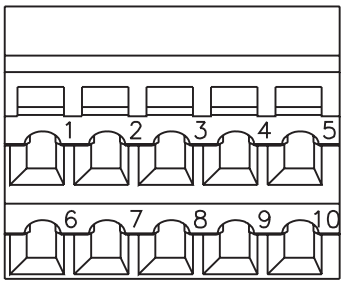
Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-DPG BW1253	PROFIBUS-DP	A	2.1	1	1		
ASI-DPG BW1371	PROFIBUS-DP	A	2.1	1	1		
ASI-CCG BW1435	CC-Link	A	2.1	2	1		

A - Single AS-I network is powered by and AS-I power supply

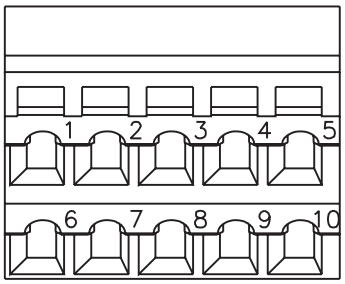
Input/Output Connectors

1



1	BUS_A
2	BUS_B
3	BUS_A
4	BUS_B
5	0V
6	Shield
7	FG (Function Gnd)
8	FG (Function Gnd)
9	Shield
10	+5V

2



1	FG (Function Gnd)
2	Shield
3	DG
4	DA
5	DB
6	FG (Function Gnd)
7	Shield
8	DG
9	DA
10	DB

Note: AS-I connections are made via standard AS-I base modules ASI-BM BW1180 or ASI-BM BW1182 (see pages E105-106).

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AS-I Masters

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

ASI-MM232-SS BW1955
ASI-MM232-SS BW1944
ASI-MM232-SS-CTL BW1986

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
  200 mA from V_{AS-i1}, 70mA from V_{AS-i2} (Power Supply A2)

Power Distribution

- From AS-I supply for each network

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

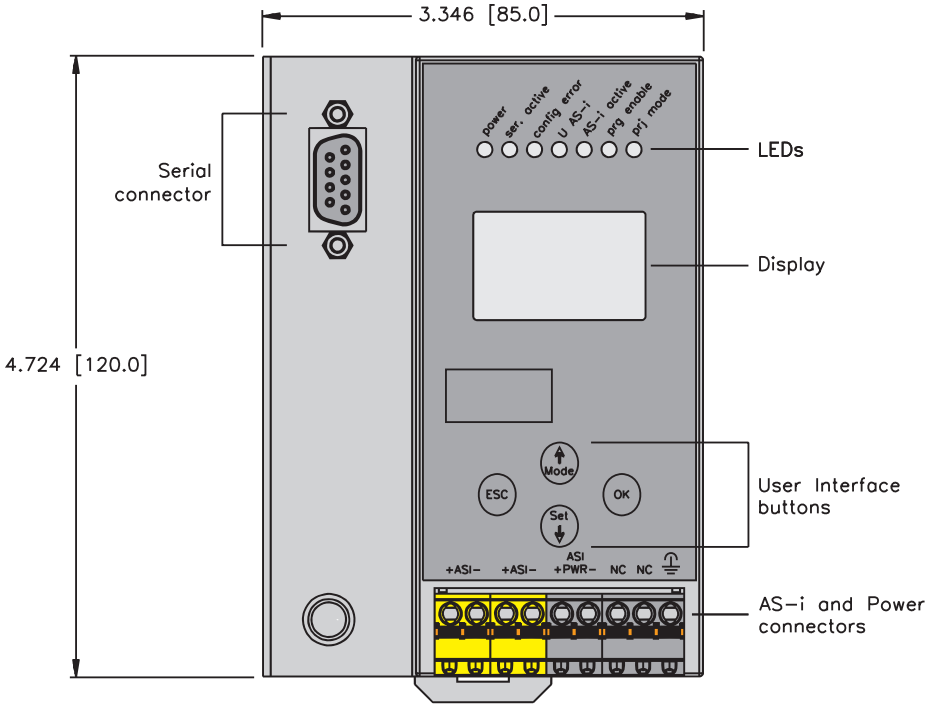
- Housing: Stainless Steel

Diagnostics (Logical)

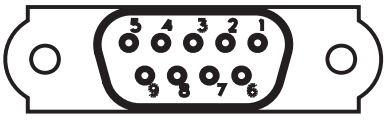
- Health of AS-I network is available via serial interface

Diagnostics (Physical)

- LED to indicate status of serial and AS-I communication and power supply



RS232 Connector



2 = RxD
3 = TxD
5 = Gnd

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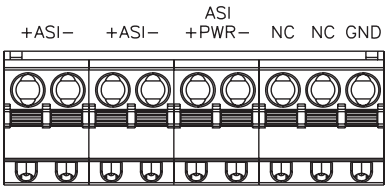
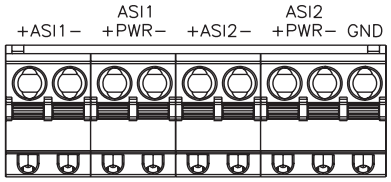
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface	Mini PLC
ASI-MM232-SS BW1955	RS232	A	3.0	1	X	X	
ASI-MM232-SS BW1944	RS232	A2	3.0	2	X	X	
ASI-MM232-SS-CTL BW1986	RS232	A	3.0	1	X	X	X

Input/Output Connectors

A



A2



A - Single AS-I network is powered by and AS-I power supply
A2 - Dual AS-I networks are each powered by their own AS-I power supply

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AS-I Masters for PC Control

ASI-MMPCI BW1195 shown

ASI-MMPCI-V3 BW1922
ASI-MMPCI-V3 BW1911
ASI-MMPCI BW1195
ASI-MMISA BW1228
ASI-MMPC104 BW1229

- **AS-I v2.1, 3.0 Supported**
- **Masters for PC Control**
- **Selection of Form Factors**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from PC (except BW1922 draws 300 mA @ 5 V, 100 mA @ 3.3 V)

Power Distribution

- From AS-I supply for each network
  From PC power supply

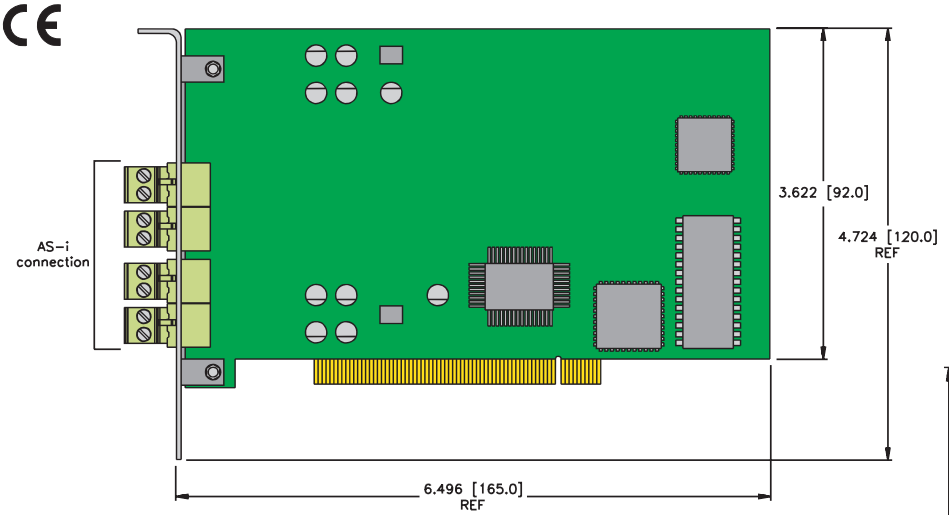
Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)

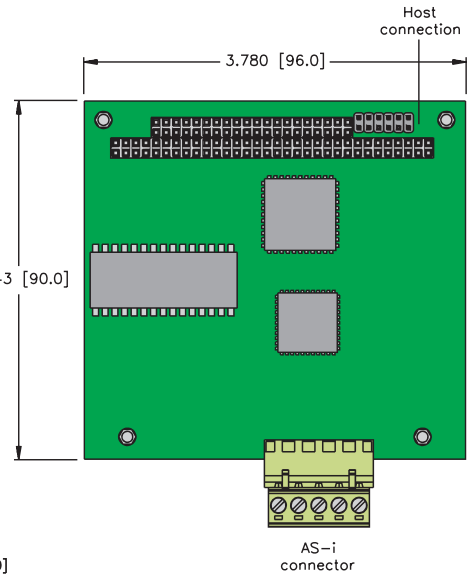
Diagnostics (Logical)

- Health of AS-I network is available via PC interface

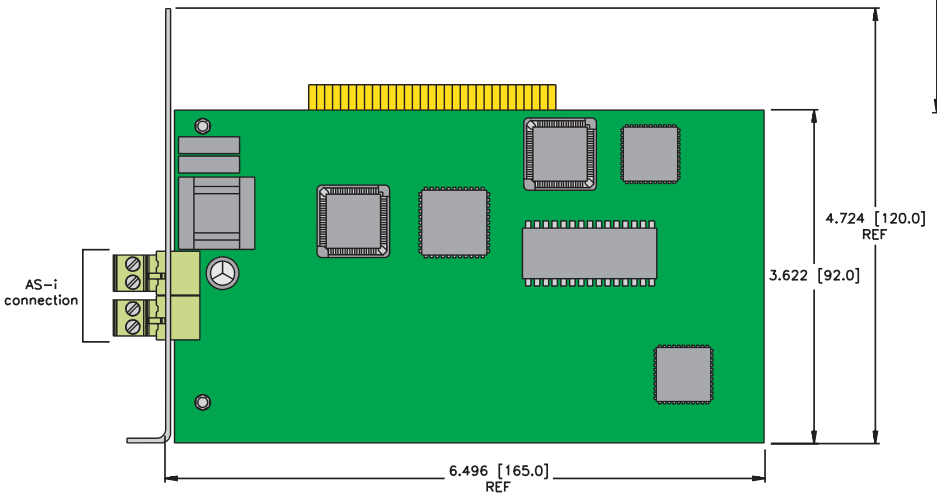
PCI



PC/104



ISA



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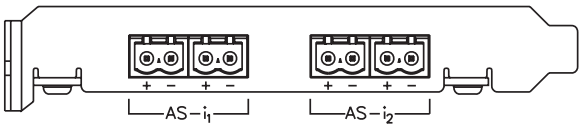
Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters	Duplicate Address Detection	Ground Fault Detection
ASI-MMPCI-V3 BW1922	PCI	PC	3.0	4	2	X	
ASI-MMPCI-V3 BW1911	Compact PCI	PC	3.0	1	2		
ASI-MMPCI BW1195	PCI	PC	2.1	1	2		
ASI-MMISA BW1228	ISA	PC	2.1	2	1		
ASI-MMPC104 BW1229	PC/104	PC	2.1	3	1		

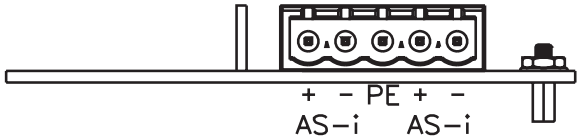
Input/Output Connectors

1

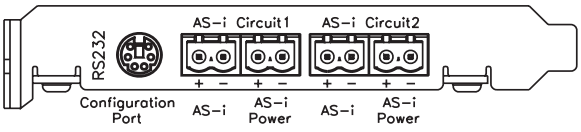


2

3



4



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Input Station

FAS4-S0400

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Flat and Round Cable Support**
- **AS-I Version 2.1**

Electrical

- Operating Current: <75 mA plus input currents (from AS-I)
- Sensor Current: <200 mA sum of all inputs (from AS-I)

Power Distribution

- Inputs: AS-I power supply

Mechanical

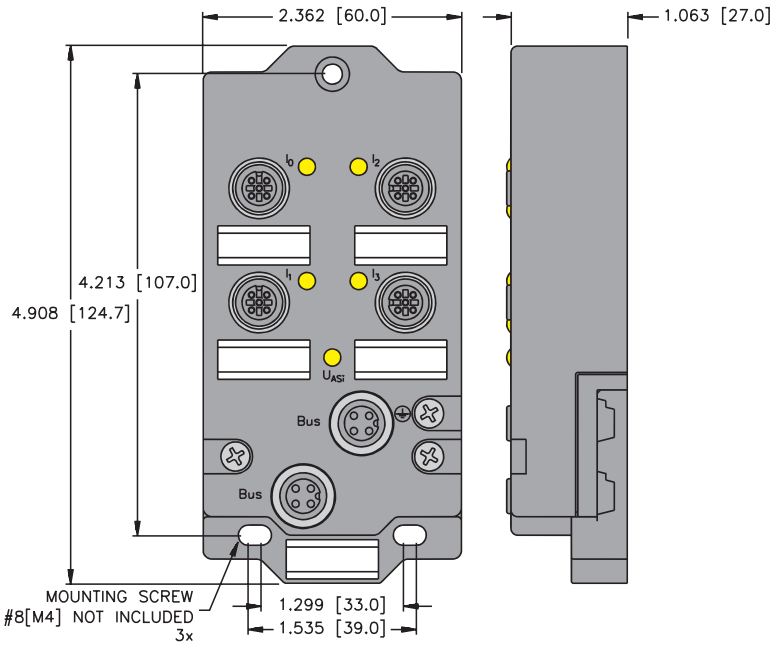
- Operating Temperature: -25 to +70°C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

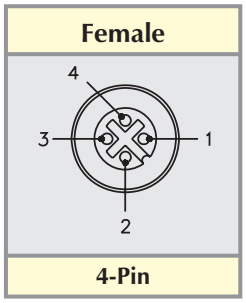
Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit.



AS-I *eurofast*® Pinout

1. = AS-I+
2. = NC
3. = AS-I
4. = NC



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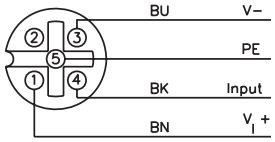
			Inputs									Data
Part Number	AS-I Version	Addressing Style	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-S0400	2.1	AB	4	0-3	S	1	PNP	X			0.A-E

Input/Output Connectors

S



Mating cordset:
RK 4.4T-*-RS 4.4T

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Input/Output Stations

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Flat and Round Cable Support**
- **AS-I Version 2.1**

FAS4-CSG44
FAS4-CSG43*
* Not UL

Electrical

- Operating Current: <50 mA plus I/O currents (from AS-I)
- I/O Current: <200 mA sum of all inputs and outputs(from AS-I)
  (FAS4-CSG43) <400 mA sum of all inputs and outputs from AS-I (FAS4-CSG44)

Power Distribution

- Inputs: AS-I power supply
- Outputs: AS-I power supply

Mechanical

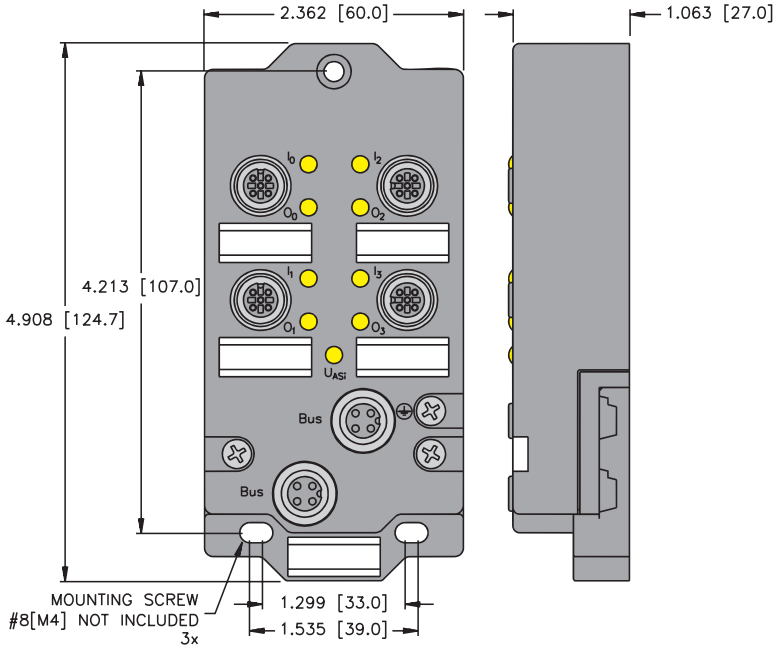
- Operating Temperature: -25 to +70 °C (-25 to +158°F)
- Protection:IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

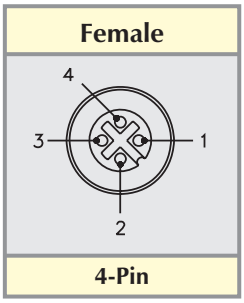
Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit



AS-I *eurofast*® Pinout

1 = AS-I+
2 = NC
3 = AS-I
4 = NC



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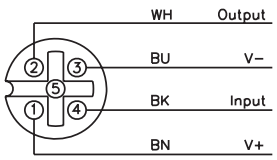
			Inputs							Outputs					Data
Part	AS-I Version	Addressing Style	In Count	Connector	Pinout	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-CSG44	2.1	Single	4		CS	PNP	X			4	CS	0.4 A *			7.F-E
FAS4-CSG43	2.1	AB	4		CS	PNP	X			3	CS	0.2 A *			7.A-E

* Total current is shared by all I/O on station

Input/Output Connectors

CS



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VB2-RS 4.4T-1/2RK 4.4T-*/*/S651

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Input/Output Stations

FAS4-CSG44-A
FAS4-CSG43-A*

* Not UL

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Auxiliary Powered Outputs**
- **AS-I Version 2.1**

Electrical

- Operating Current: <50 mA plus Input currents (from AS-I)
- I/O Current: <200 mA sum of all inputs from AS-I (FAS4-CSG43-A)
  <400 mA sum of all inputs from AS-I Power (FAS4-CSG44-A)
- Output Current: <700 mA per output (from Aux. power)

Power Distribution

- Inputs: AS-I power supply
- Outputs: AS-I power supply

Mechanical

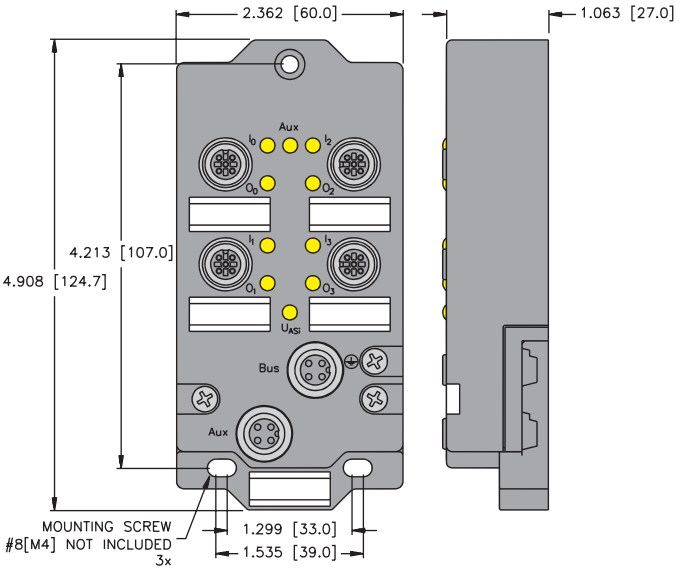
- Operating Temperature: -25 to +70 °C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

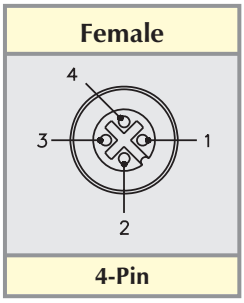
Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit



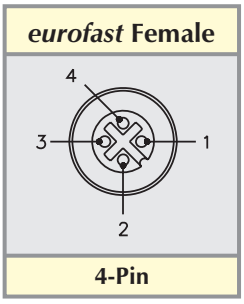
AS-I *eurofast*® Pinout

1. = AS-I+
2. = NC
3. = AS-I
4. = NC



Aux. Power Pinout

1. = V_{AUX}+
2. = NC
3. = V_{AUX}-
4. = NC



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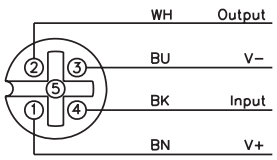
			Inputs								Outputs						Data
Part Number	AS-I Version	Addressing Style	In Count	Connectors	Pinout	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-CSG44-A	2.1	Single	4	0-3	CS	PNP	X			4	0-3	CS	0.7 A			7.F-E
FAS4-CSG43-A	2.1	AB	4	0-2	CS	PNP	X			3	0-2	CS	0.7 A			7.A-E

Input/Output Connectors

CS



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VB2-RS 4.4T-1/2RK 4.4T-*/*/S651

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Input/Output Stations

FAS4-S0202G-A

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Auxiliary Powered Outputs**
- **AS-I Version 2.1**

Electrical

- Operating Current: <50 mA plus Input currents (from AS-I)
- Input Current: <200 mA sum of all inputs (from AS-I)
- Output Current: <400 mA sum of all outputs (from Aux. power)

Power Distribution

- Inputs: AS-I power supply
- Outputs: AS-I power supply

Mechanical

- Operating Temperature: -25 to +70°C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Power Distribution

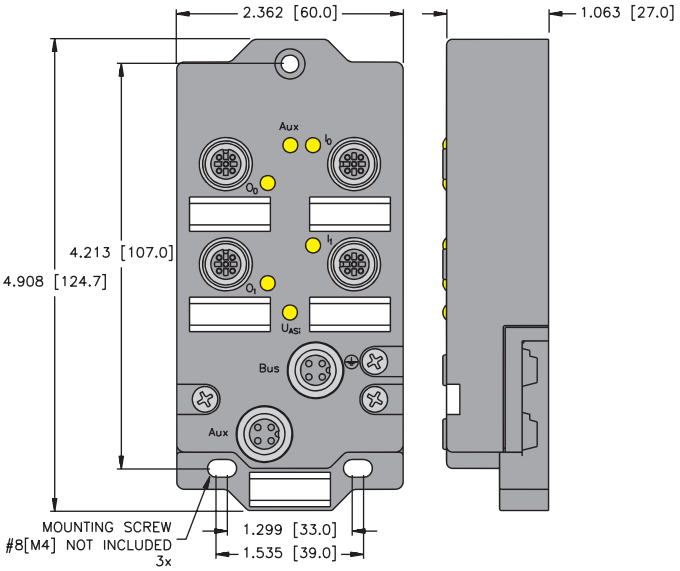
-

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

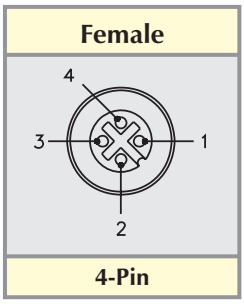
Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit



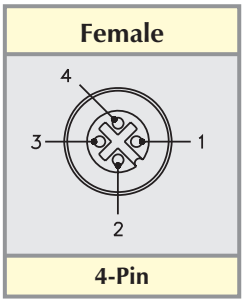
AS-I *eurofast*® Pinout

1 = AS-I+
2 = NC
3 = AS-I
4 = NC



Aux. Power *eurofast* Pinout

1 = V_{AUX}+
2 = NC
3 = V_{AUX}-
4 = NC



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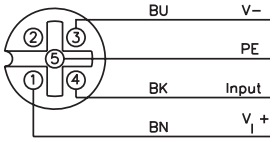
			Inputs								Outputs						Data
Part Number	AS-I Version	Addressing Style	In Count	Connectors	Pinout	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-S0202G-A	2.1	AB	2	2-3	S	PNP	X			2	0-1	G	0.4 A			B.A-E

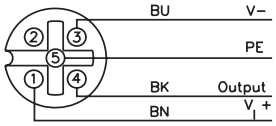
Input/Output Connectors

S



Mating cordset:
RK 4.4T-*-RS 4.4T

G



Mating cordset:
RK 4.4T-*-RS 4.4T

Output Station

FAS4-S0003G-A

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Auxiliary Powered Outputs**
- **AS-I Version 2.1**

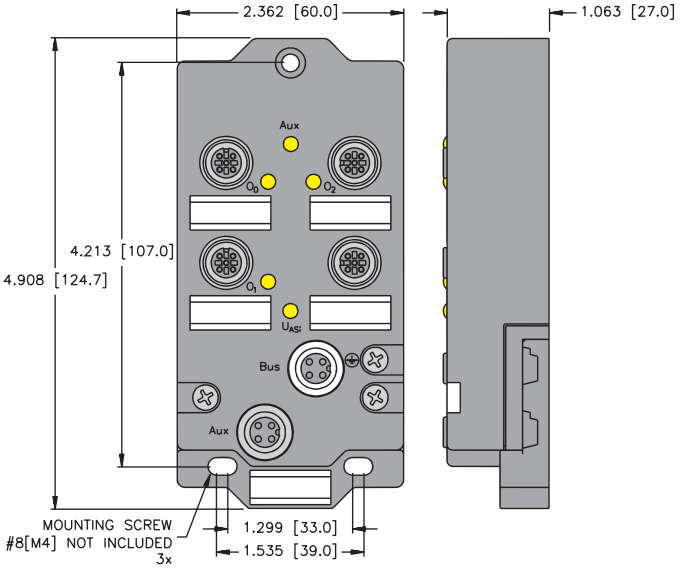
Electrical
- Operating Current: <50 mA (from AS-I)
- Output Current: <700 mA per output (from Aux. power)

Power Distribution
- Outputs: Auxiliary power supply

Mechanical
- Operating Temperature: -25 to +70°C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

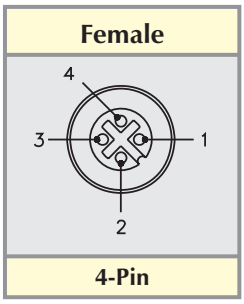
Material
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)
- I/O faults are reported via the AS-I peripheral fault bit



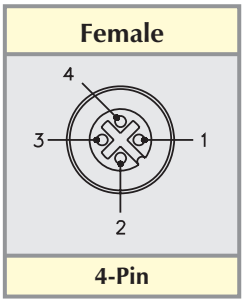
AS-I *eurofast*® Pinout

1 = AS-I+
2 = NC
3 = AS-I
4 = NC



Aux. Power *eurofast* Pinout

1 = V_{AUX}+
2 = NC
3 = V_{AUX}-
4 = NC



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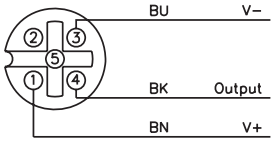
	Outputs								Data
Part Number	AS-I Version	Addressing Style	Output Count	Connectors	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-S0003G-A	2.1	AB	3	0-2	GS	0.7 A			8.A-E

Output Connectors

GS



Mating cordset:
RK 4.4T-*-RS 4.4T

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AS-I Conduit Adapter Slave

- **Slave Right in Conduit**
- **Fits Crouse-Hinds Bodies**
- **Ideal Where Conduit Is Required**
- **Bus Powered I/O**

BCS-ASI-CSG22

Electrical

- Operating Current: <200 mA including all I/O current (from AS-I)
- Output Current: <80 mA sum of all outputs (from AS-I)

Power Distribution

- Inputs: AS-I power supply
- Outputs: AS-I power supply

Mechanical

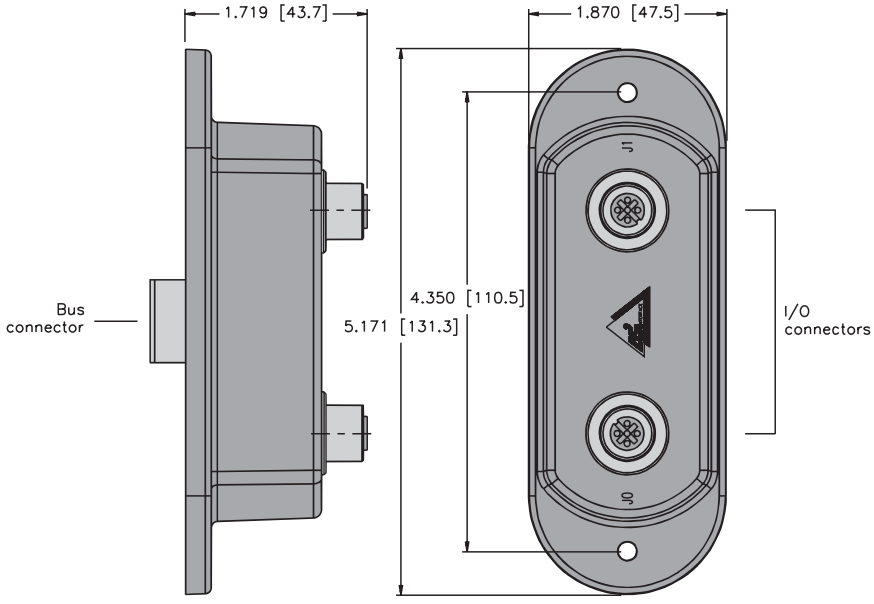
- Operating Temperature: -25 to +70°C (-25 to +158°F)
- Protection:IEC IP 67

Material

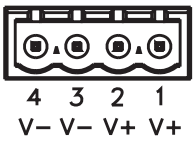
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon (other materials available on request)

Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit



AS-I Connector



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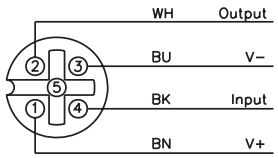
	Inputs										Outputs						Data
Part Number	AS-I Version	Addressing Style	Input Count	Connectors	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Current	Individual Diagnostics	OCD	Slave Profile
BCS-ASI-CSG22	2.1	AB	2	0-1	CS	PNP	X			2	0-1	CS	80 mA			B.A-E

Input/Output Connectors

CS



Mating cordset:
RK 4.4T-*-RS 4.4T

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Analog Input Stations

ASI-AI-2 BW1345
ASI-AI-2 BW1447
ASI-AI-2A BW1726

- **Analog on AS-I**
- **IP 20 for In-the-Cabinet**
- **Powered by AS-I or Auxiliary Supply**

Electrical

- Operating Current: <80 mA (from AS-I)
- Sensor Current: <40 mA per input

Power Distribution

- Inputs: AS-I or Auxiliary supply, selectable by user
  BW1345, BW1447 default sensor current from AS-I
  BW1726 default sensor current from auxiliary supply

Mechanical

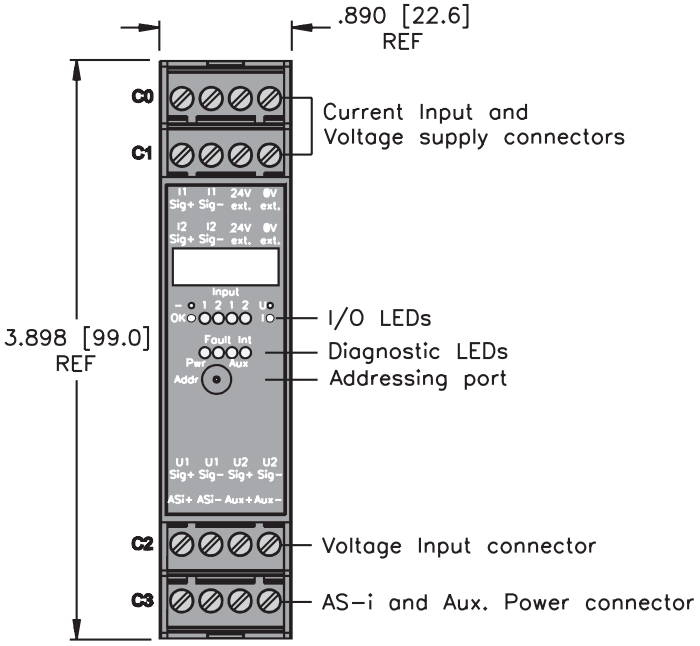
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 20

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- One LED indicates an I/O fault (over or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



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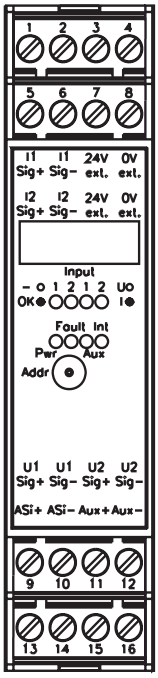
	Inputs								Data
Part Number	ASI Version	Addressing Style	In Count	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-2 BW1345	2.1	Single	2	4 to 20 mA/0 to 10 V	X	X	X	7.3-D	1
ASI-AI-2 BW1447	2.1	Single	2	4 to 20 mA/0 to 10 V	X	X	X	7.3-D	1
ASI-AI-2A BW1726	2.1	Single	2	4 to 20 mA/0 to 10 V	X	X	X	7.3-D	1

Input/Output Connectors



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

* Notes: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode.
BW1345 and BW1726 use range of 4000...20000 for current and 0...10000 for voltage inputs.
BW1447 uses range of 0...27648 (0x0000...0x6C00) for compatibility with existing Siemens based programs.

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Analog Input Stations

- **Analog on AS-I**
- **IP 65 Protection**
- **Powered by AS-I or Auxiliary Supply**

ASI-AI-2 BW1232
ASI-AI-2 BW1233

Electrical

- Operating Current: <80 mA from AS-I
- Sensor Current: <40 mA per input

Power Distribution

- Inputs: AS-I or Auxiliary supply, selectable by user

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65
- Connections: Cage clamp block through gland fittings

Material

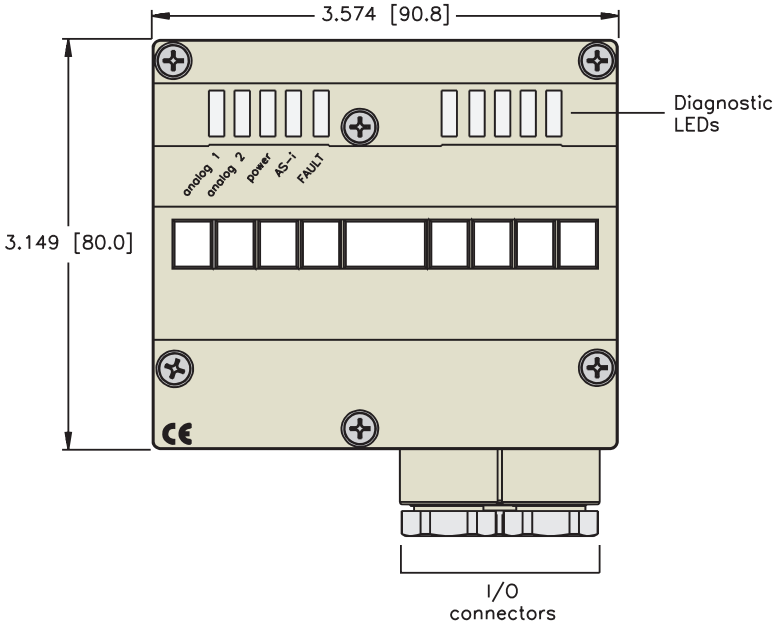
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicate I/O faults (over- and under-current or voltage for each channel)
- LEDs to indicate status of AS-I communication and power supply



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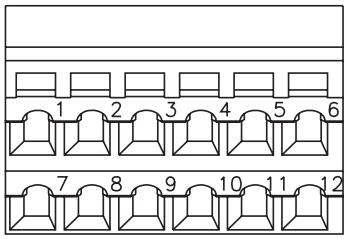
			Inputs						Data
Part Number	AS-I Version	Addressing Style	In Count	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-2 BW1232	2.1	Single	2	4 to 20 mA	X	X	X	7.3-D	1
ASI-AI-2 BW1233	2.1	Single	2	0 to 10 V	X	X	X	7.3-D	1

Input/Output Connectors

1



1	V_{AUX}+
2	Signal1+
3	V_{AUX}-
4	Signal1-
5	Shield
6	Shield
7	V_{AUX}+
8	Signal0+
9	V_{AUX}-
10	Signal0-
11	FG (Function Gnd)
12	FG (Function Gnd)

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode. BW1232 range of values is 4000-20000. BW1233 range of values is 0-10000.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

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Analog Input Stations

ASI-AI-4 BW1364
ASI-AI-4 BW1365
ASI-AI-4PT100 BW1368

- **Analog on AS-I**
- **IP 20 for In-The-Cabinet**
- **Powered by AS-I or Auxiliary Supply**
- **Voltage, Current or Temperature Inputs**

Electrical

- Operating Current: <80 mA from AS-I
- Sensor Current: <40 mA per input (BW1364 and BW1365)

Power Distribution

- Inputs: AS-I or Auxiliary supply

Mechanical

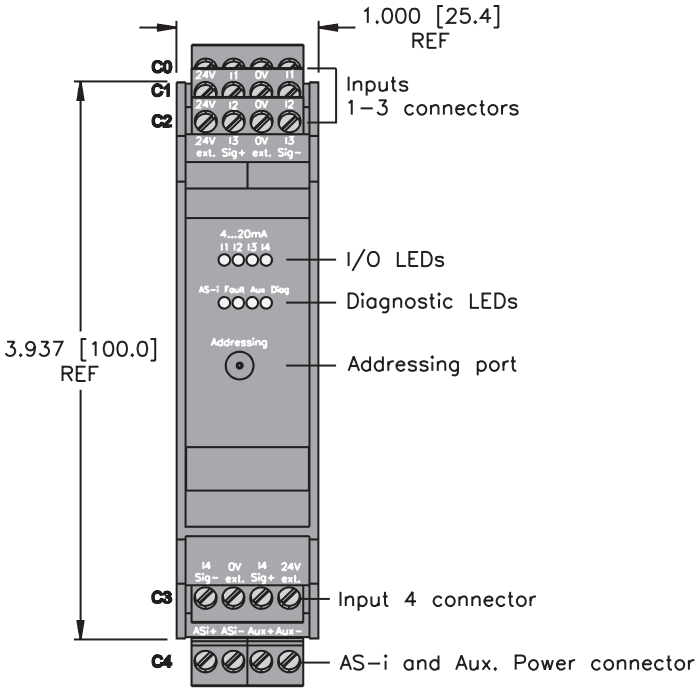
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 20

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicate faults for each input
- LEDs to indicate status of AS-I communication and power supply



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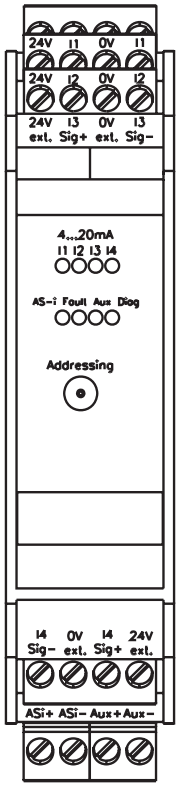
			Inputs						Data	
Part Number	AS-I Version	Addressing Style	In Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-4 BW1364	2.1	Single	4	1	4 to 20 mA	X	X	X	7.3-E	1
ASI-AI-4 BW1365	2.1	Single	4	1	0 to 10 V	X	X	X	7.3-E	1
ASI-AI-4PT100 BW1368	2.1	Single	4	2	RTD	X	X	X	7.3-5	1

Input/Output Connectors



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode, 1 mV/bit in voltage mode and 0.1 °C in temperature mode (range is -200 to +850°C).

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Temperature Input Stations

- **Analog on AS-I**
- **IP 20 for In-The-Cabinet**
- **Powered by AS-I or Auxiliary Supply**
- **Relay Output Option**

ASI-AI-4PT100 BW1254
ASI-AI/DO-2RTD/2R BW1552

Electrical

- Operating Current: <80 mA from AS-I

Power Distribution

- Inputs: AS-I or Auxiliary supply (BW1368 is only powered from AS-I)

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65
- Connections: Cage clamp block through gland fittings

Material

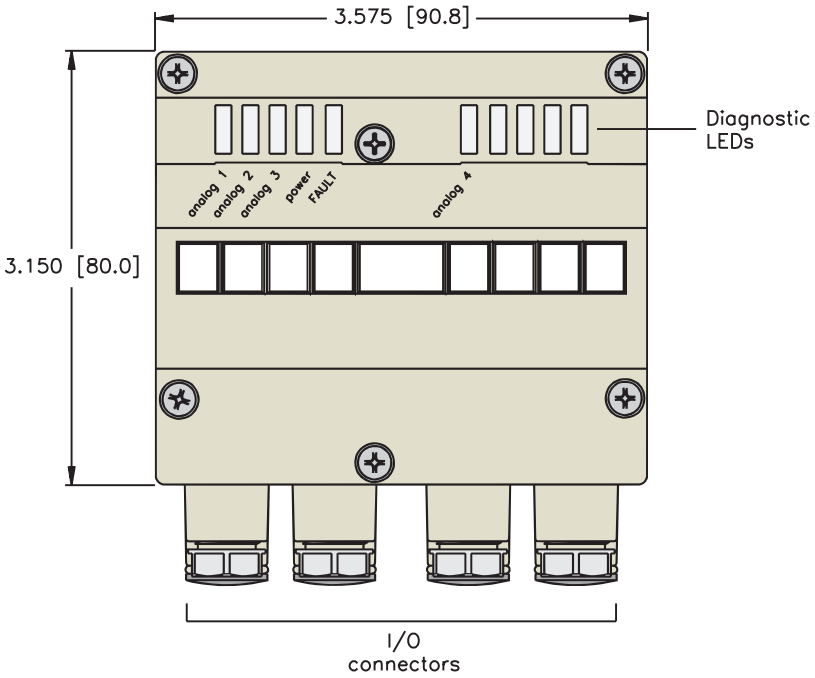
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicate faults for each input
- LEDs to indicate status of AS-I communication and power supply



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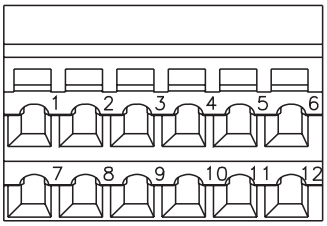
			Inputs						Outputs				Data	
Part Number	AS-I Version	Addressing Style	In Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Out Count	Pinout	Current	Individual Diagnostics	Slave Profile	Map
ASI-AI-4PT100 BW1254	2.1	Single	4	1	RTD	X	X	X	0				7.3-E	1
ASI-AI/DO-2RTD/2R BW1552	2.1	Single	2	2	RTD	X	X	X	2	2	0.5 A		7.3-D	1

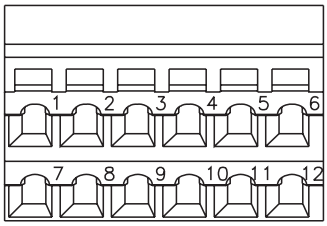
Input/Output Connectors

1



1	V+
2	$Signal_0$-
3	V0-
4	V+
5	$Signal_1$-
6	V_1-
7	V+
8	$Signal_2$-
9	V_2-
10	V+
11	$Signal_3$-
12	V_3-

2



1	V+
2	$Signal_0$-
3	V0-
4	V+
5	$Signal_1$-
6	V_1-
7	O_0 (NO)
8	O_0-
9	O_0 (NC)
10	O_1 (NO)
11	O_1-
12	O_1 (NC)

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 0.1 °C/bit in RTD mode (range is -200 to +850 C).

For BW1552 relay outputs are set via parameter bits 2 and 3.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

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Analog Output Stations

ASI-AO-2 BW1412
ASI-AO-2A BW1727

- **Analog on AS-I**
- **IP 20 for In-The-Cabinet**
- **Powered by AS-I or Auxiliary Supply**
- **Voltage and Current Outputs**

Electrical

- Operating Current: <80 mA from AS-I

Power Distribution

- Outputs: AS-I or Auxiliary supply, selectable by switch inside housing
  BW1412 default from AS-I
  BW1727 default from auxiliary supply

Mechanical

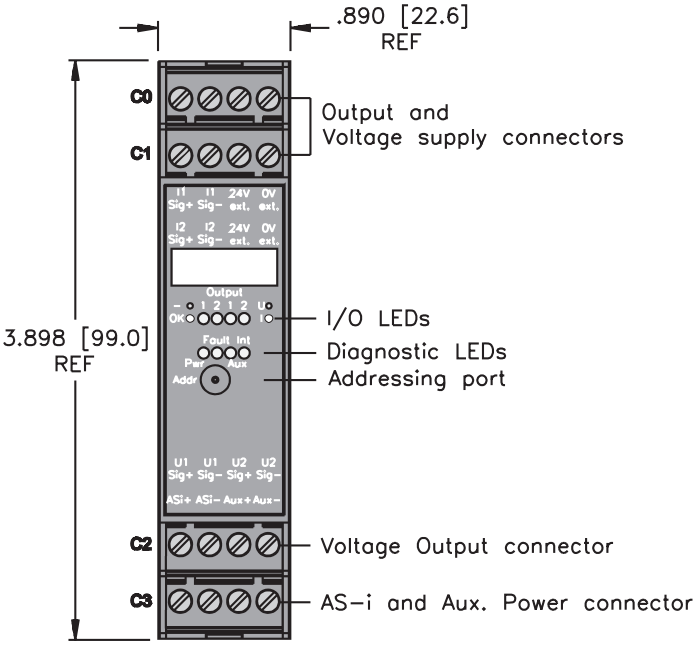
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 20

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicates an I/O fault (over- or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



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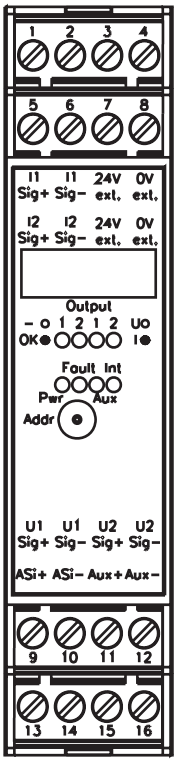
			Outputs					Data	
Part Number	AS-I Version	Addressing	Output Count	Style	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AO-2 BW1412	2.1	Single	2	0 to 20 mA/0 to 10 V	X	X	7.3-5	1
ASI-AO-2A BW1727	2.1	Single	2	0 to 20 mA/0 to 10 V	X	X	7.3-5	1

Input/Output Connectors


1 2 3 4
5 6 7 8
I1 Sig+ I1 Sig− 24V ext. 0V ext.
I2 Sig+ I2 Sig− 24V ext. 0V ext.
Output
– o 1 2 1 2 Uo
OK
Fault Int
Pwr Aux
Addr
U1 Sig+ U1 Sig− U2 Sig+ U2 Sig−
ASi+ ASi− Aux+ Aux−
9 10 11 12
13 14 15 16

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit (0-20000 in current mode and 1 mV/bit (0-10000) in voltage mode.

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Analog Output Stations

- **Analog on AS-I**
- **IP 65 Protection**
- **Powered by AS-I or Auxiliary Supply**
- **Voltage or Current Outputs**

ASI-AO-2 BW1234
ASI-AO-2 BW1235

Electrical

- Operating Current: <80 mA from AS-I

Power Distribution

- Outputs: AS-I or Auxiliary supply, selectable by internal jumpers

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65
- Connections: Cage clamp block through gland fittings

Material

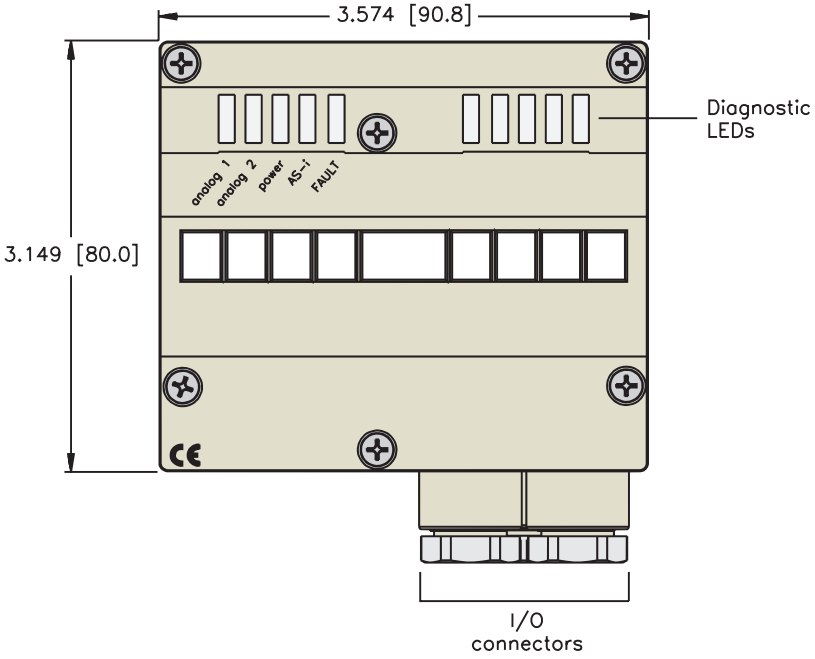
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicates an I/O fault (over- or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



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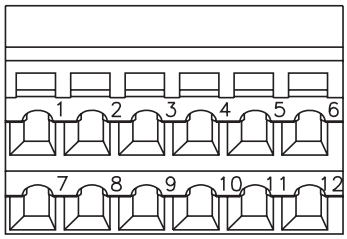
			Outputs				Data	
Part Number	AS-I Version	Addressing Style	Output Count	Style	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AO-2 BW1234	2.1	Single	2	0 to 20 mA	X	X	7.3-5	1
ASI-AO-2 BW1235	2.1	Single	2	0 to 10 V	X	X	7.3-5	1

Input/Output Connectors

1



1	V_{AUX}+
2	Signal1+
3	V_{AUX}-
4	Signal1-
5	Shield
6	Shield
7	V_{AUX}+
8	Signal0+
9	V_{AUX}-
10	Signal0-
11	FG (Function Gnd)
12	FG (Function Gnd)

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode.

BW1234 range of values is 0-20000. BW1235 range of values is 0-10000.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

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Analog Output Stations

ASI-AO-4 BW1366
ASI-AO-4 BW1367

- **Analog on AS-I**
- **IP 20 Protection**
- **Powered by AS-I or Auxiliary Supply**
- **Voltage or Current Outputs**

Electrical

- Operating Current: <80 mA from AS-I

Power Distribution

- Outputs: AS-I or Auxiliary supply

Mechanical

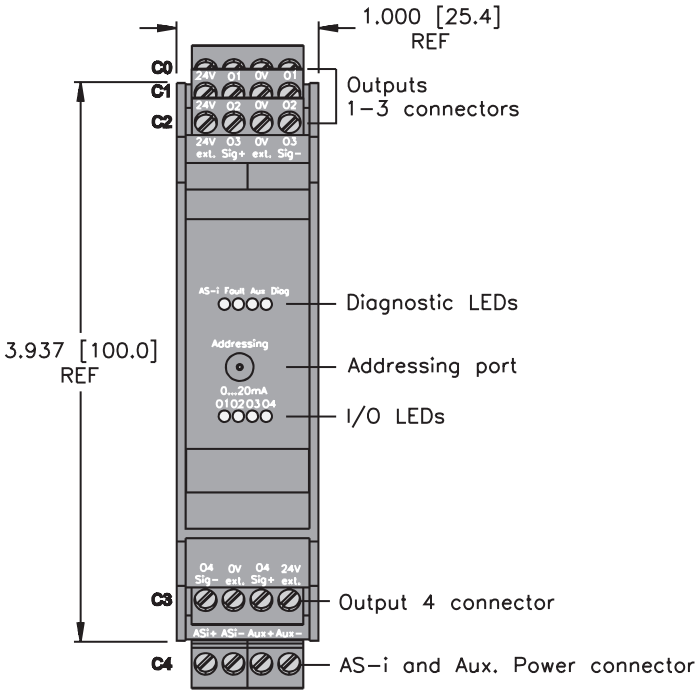
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 20

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicates an I/O fault (over- or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



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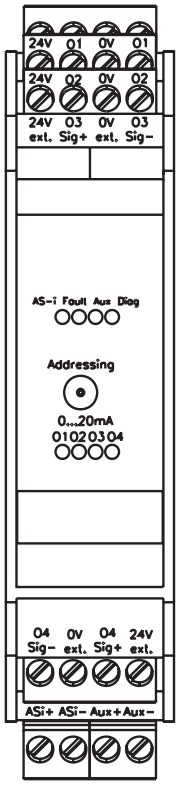
			Outputs				Data	
Part Number	Input Count	Addressing Style	Output Count	Style	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AO-4 BW1366	2.1	Single	4	0 to 20 mA	X	X	7.3-6	1
ASI-AO-4 BW1367	2.1	Single	4	0 to 10 V	X	X	7.3-6	1

Input/Output Connectors



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode. BW1366 range of values is 4000-20000. BW1367 range of values is 0-10000.

Scale Input Station

- **Analog on AS-I**
- **Power from AS-I**
- **IP 65 Protection**
- **Unique I/O Configurations**

ASI-AI-1SCALE BW1465

CE

Note: This station is designed for connecting a load cell to AS-I.

Electrical

- Operating Current: <80 mA from AS-I

Power Distribution

- Inputs: AS-I power supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65
- Connections: Cage clamp block through gland fittings

Material

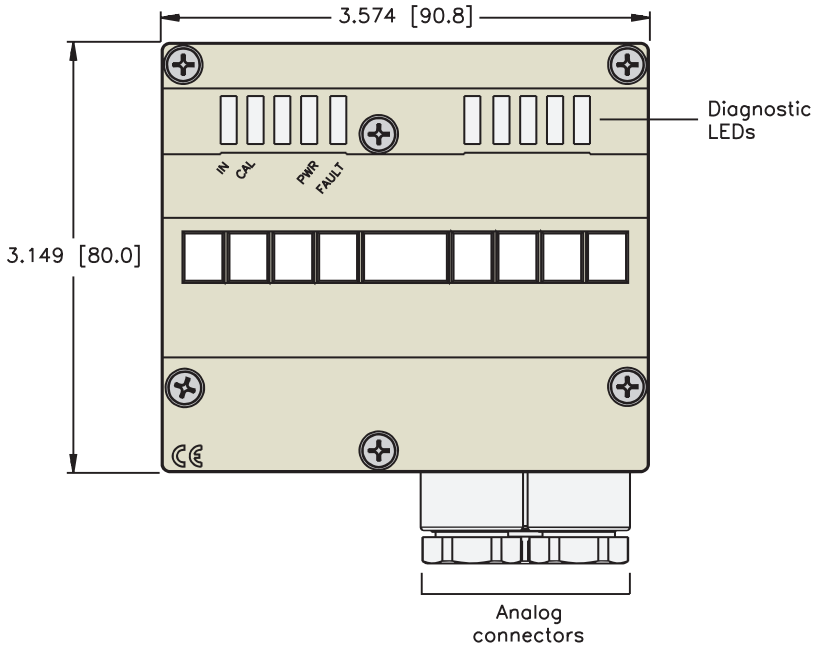
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicate I/O faults
- LEDs to indicate status of AS-I communication and power supply



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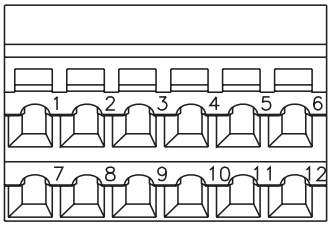
Part Number	AS-I Version	Addressing Style	In Count	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
			Inputs					Data	
ASI-AI-1SCALE BW1465	2.1	Single	1	Scale		X		7.3-C	1

Input/Output Connectors



1, 7	V+
2, 8	Signal1+
3, 9	Output+
4, 10	Output-
5, 11	Signal-
6, 12	V-

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Resolution is 16 bits.
Calibration is done via Windows software and the special BW1260 master.
AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) (see pages E105-106).

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Analog Input Stations

ASI-AI-02-M12-V3 BW1893
ASI-AI-02-M12 BW1894
ASI-AI-02RTD-M12-V3 BW1895

- **Analog on AS-I**
- **Power from AS-I**
- **IP 65 Protection**
- **Current or PT100 Inputs**

Electrical

- Operating Current: <200 mA (BW1893, BW1894) or <80 mA (BW1895) from AS-I
- Sensor Current: <40 mA per input (BW1893, BW1894)

Power Distribution

- Outputs: AS-I power supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65

Material

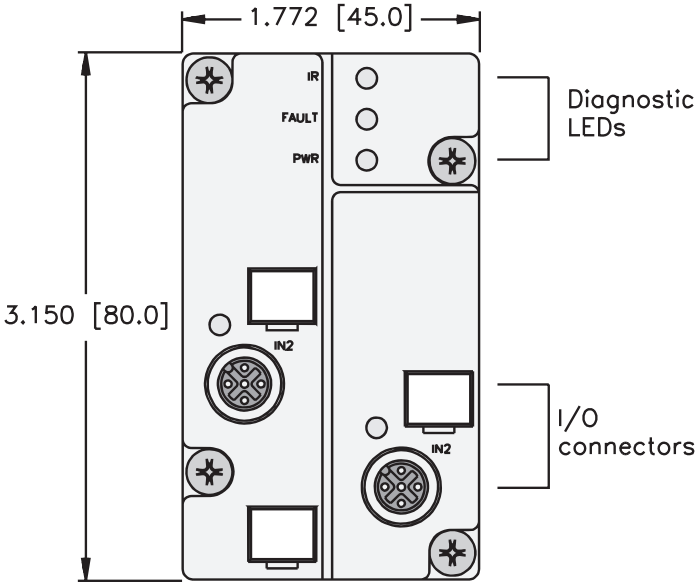
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicate an I/O fault (over- or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



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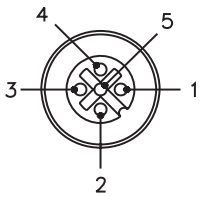
Part Number	AS-I Version	Addressing Style	In Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
	Inputs								Data	
ASI-AI-02-M12-V3 BW1893	3.0	AB	2	1	4 to 20 mA	X	X	X	7.A-9	1
ASI-AI-02-M12 BW1894	2.1	Single	2	1	4 to 20 mA	X	X	X	7.3-D	1
ASI-AI-02RTD-M12-V3 BW1895	3.0	AB	2	2	RTD	X	X	X	7.A-9	1

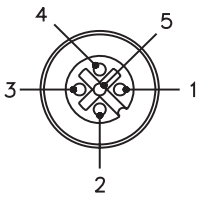
Input/Output Connectors

1



1 = V+
2 = Signal +
3 = 0 V
4 = 0 V
5 = Shield

2



1 = E+
2 = Signal +
3 = E -
4 = Signal -
5 = Shield

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	0	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 0.1 dC/bit in RTD mode.

BW1893 and BW1894 default range of values is 4000-20000 (can be configured for 0-27648). BW1895 default range of values is -200...+850 C (can be configured for -120 to +130 C).

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) (see pages E105-106).

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Analog Input Stations

- **Analog on AS-I**
- **IP 65 Protection**
- **Current, Voltage or PT100 Inputs**
- **Powered by AS-I or Auxiliary Supply**

ASI-AI-4-M12 BW1359
ASI-AI-4-M12 BW1360
ASI-AI-4-M12 BW1742
ASI-AI-4PT100-M12 BW1363

Electrical

- Operating Current: <200 mA (except BW1363 is <80 mA) from AS-I
- Sensor Current: <40 mA per input (BW1359, BW1360, BW1742)

Power Distribution

- Inputs: AS-I or Auxiliary power supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
  (except BW1742 is -20 to +70° C) (-4 to +158°F)
- Protection: IP 65

Material

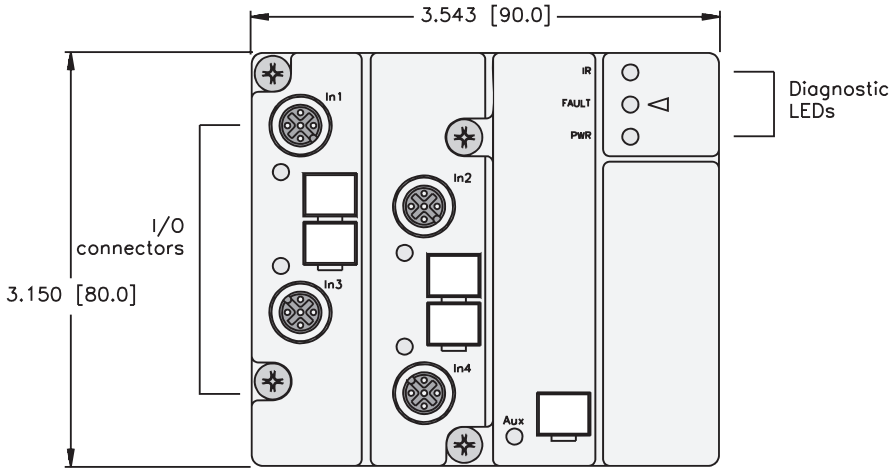
- Housing: Nylon

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicates an I/O fault (over or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



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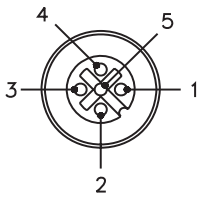
			Inputs							Data
Part Number	AS-I Version	Addressing Style	In Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-4-M12 BW1359	2.1	Single	4	1	4 to 20 mA	X	X	X	7.3-E	1
ASI-AI-4-M12 BW1360	2.1	Single	4	1	0 to 10 V	X	X	X	7.3-E	1
ASI-AI-4-M12 BW1742	2.1	Single	4	1	0 to 10 V	X	X	X	7.3-E	1
ASI-AI-4PT100-M12 BW1363	2.1	Single	4	2	RTD	X	X	X	7.3-E	1

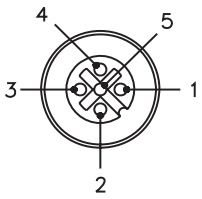
Input/Output Connectors

1



1 = V+
2 = Signal +
3 = 0 V-
4 = Signal -
5 = Shield

2



1 = E+
2 = Signal +
3 = E -
4 = Signal -
5 = Shield

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode, 1 mV/bit in voltage mode and 0.1 C/bit in temperature mode.

BW1359 range of values is 4000-20000. BW1360, BW1742 range of values is 0-10000. BW1363 range is -200 to +850 C.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

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Analog Output Stations

- **Analog on AS-I**
- **IP 65 Protection**
- **Voltage or Current Outputs**
- **Powered by AS-I or Auxiliary Supply**

ASI-AO-4-M12 BW1361
ASI-AO-4-M12 BW1362
ASI-AO-4-M12 BW1722
ASI-AO-4-M12 BW1736

Electrical

- Operating Current: <200 mA (except BW1722 is <100 mA) from AS-I
- Output Current: 1.1 A per output from auxiliary power (BW1722 only)

Power Distribution

- Outputs: AS-I power supply (except BW1722 is auxiliary power supply)

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
  (except BW1736 is -20 to +70°C) (-4 to +158°F)
- Protection: IP 65

Material

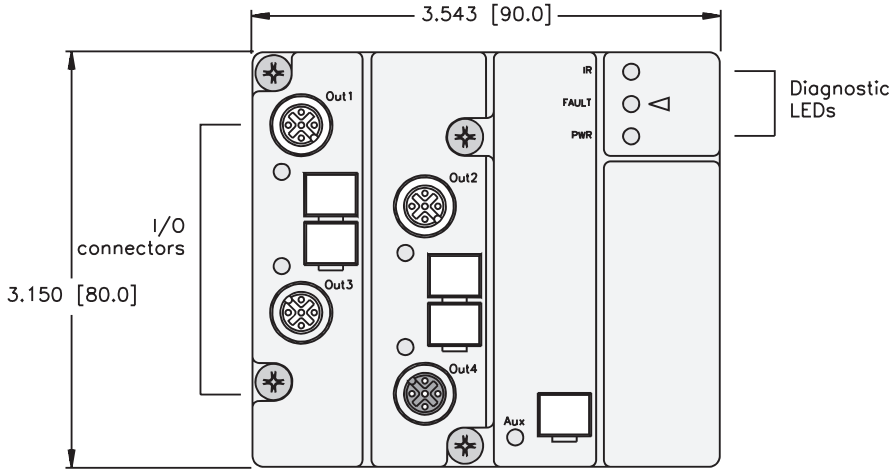
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicate an I/O fault for each channel
- LEDs to indicate status of AS-I communication and power supply



Note: ASI-AO-4-M12 BW1722 supplies up to 1.1 A for powering output devices.

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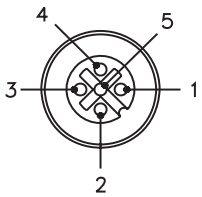
			Outputs				Data	
Part Number	AS-I Version	Addressing Style	Out Count	Style	Pinout	OCD	Slave Profile	Map
ASI-AO-4-M12 BW1361	2.1	Single	4	0 to 20 mA	1	X	7.3-6	1
ASI-AO-4-M12 BW1362	2.1	Single	4	0 to 10 V	1	X	7.3-6	1
ASI-AO-4A-M12 BW1722	2.1	Single	4	0 to 20 mA	2	X	7.3-6	1
ASI-AO-4-M12 BW1736	2.1	Single	4	0 to 10 V	1	X	7.3-6	1

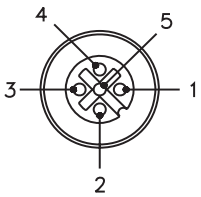
Input/Output Connectors

1



1 = Signal+
2 = NC
3 = Signal -
4 = NC
5 = Shield

2



1 = Signal +
2 = V+
3 = Signal -/V-
4 = NC
5 = Shield

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode. BW1361, BW1722 range of values is 0-20000. BW1362, BW1736 range of values is 0-10000.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

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AS-I Counter Stations

ASI-AI-2C BW1574
ASI-AI-4C BW1710
ASI-AI-1C BW1723*
ASI-AI-1C BW1711*

* Not UL

- **Count Signals Over AS-I**
- **1 to 4 Channels**
- **IP 65 Protection**
- **Powered by AS-I or Auxiliary Supply**

Electrical

- Operating Current: <200 mA (from U_B)
- Sensor Current: <150 mA from AS-I (except BW1723 is <700 mA from aux. supply)

Power Distribution

- Inputs: AS-I supply (except BW1723 from auxiliary supply)

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65

Material

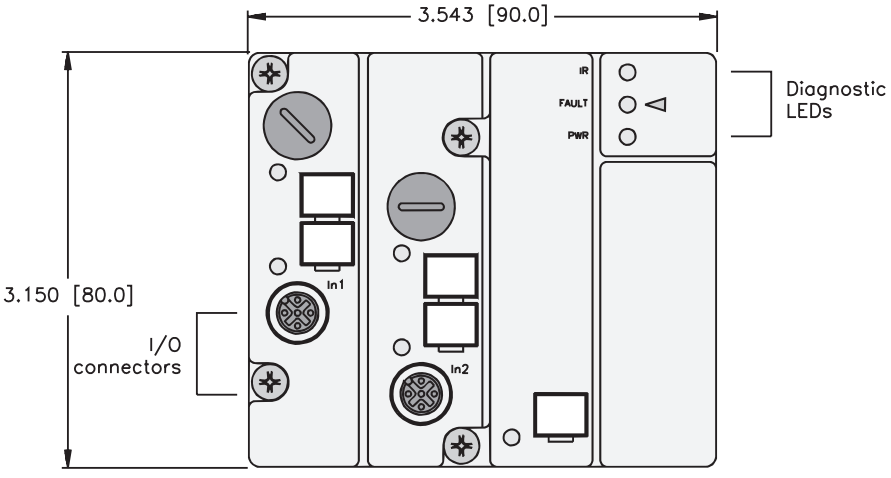
- Housing: Plastic

Diagnostics (Logical)

- Overflow and underflow errors are reported via the AS-I peripheral fault bit (except BW1711)

Diagnostics (Physical)

- LEDs indicate the status of each I/O point
- LEDs to indicate status of AS-I communication and power supply



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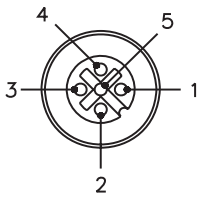
			Inputs				Data	
Part Number	AS-I Version	Addressing Style	In Count	Pinout	Style	Resolution	Slave Profile	Map
ASI-AI-2C BW1574	2.1	Single	2	1	Counter	16-bit	7.3-C	1
ASI-AI-4C BW1710	2.1	Single	4	2	Counter	16-bit	7.3-D	1
ASI-AI-1C BW1723	2.1	Single	1	3	Counter	16-bit	7.3-C	1
ASI-AI-1C BW1711	2.1	Single	1	4	Counter	4-bit	0.F-F-E	2

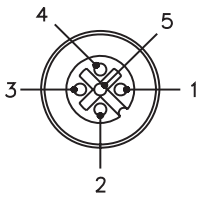
Input/Output Connectors

1



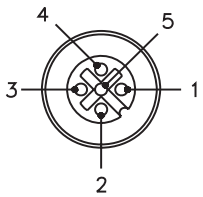
1 = V+
2 = Channel 1
3 = 0 V
4 = Channel 2
5 = NC

2



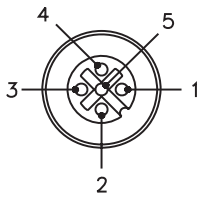
1 = V+
2 = Channel 1, 3
3 = 0 V
4 = Channel 2, 4
5 = NC

3



1 = V+
2 = Input
3 = 0 V
4 = Status In
5 = NC

4



1 = V+
2 = Input
3 = 0 V
4 = NC
5 = NC

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Count Value (LSB)							
	1	Count Value (MSB)							

Note: Data map applies to each counter channel.
Range is -32768…+32767.

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0					Count Value			

Note: Range is 0…15.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (BW1723 only) (see pages E105-106).

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AS-I Code Block

ASI-CODEBLK BW1527

- **Provides a Fixed Value**
- **IP 67 Protection**
- **Use to Code Tools or Machine Components**
- **Powered by AS-I**

Electrical

- Operating Current: <50 mA from AS-I

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 65

Material

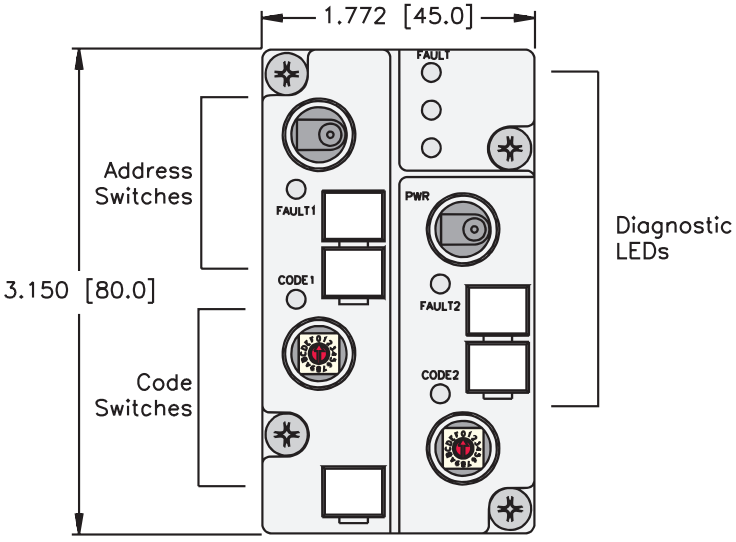
- Housing: Plastic

Diagnostics (Logical)

- Faults are reported via the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicate I/O faults
- LEDs to indicate status of AS-I communication and power supply



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			Inputs					Data
Part Number	AS-I Version	Addressing Style	In Count	# Addresses Occupied	Style	Range	Slave Profile	Map
ASI-CODEBLK BW1527	2.1	AB	8 bits	2	Code	0 to 255	0.A-F-E	1

Note: This station occupies two AS-I addresses, each with four inputs. The input values are fixed by two rotary switches to proved a code value

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Code (High Nibble)				Code (Low Nibble)			

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) (see pages E105-106).

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AS-I Repeaters

REP-ASI BW1855

- **Extend AS-I Network Length**
- **Isolate AS-I Power Segments**
- **IP 20 for In-The-Cabinet**
- **Fault LED Aids in Diagnostics**

Electrical

- Operating Current: <60 mA from each AS-I segment (<120 mA total)

Power Distribution

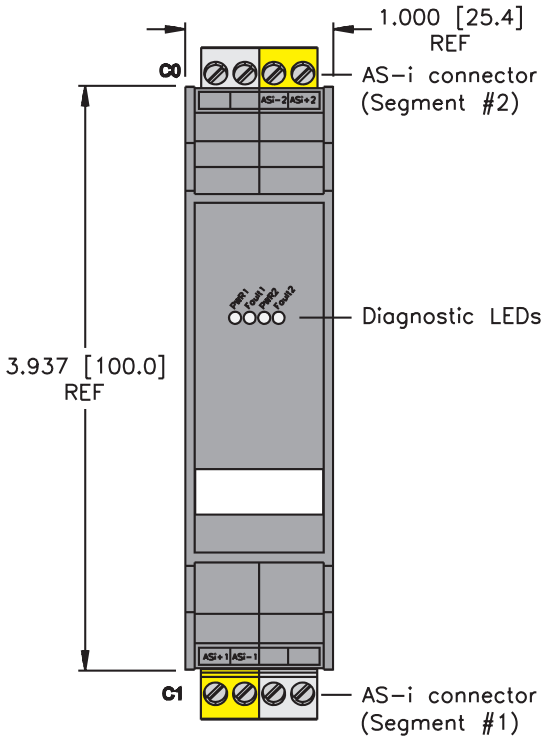
- Each isolated segment is powered from it's respective AS-I power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and power supply



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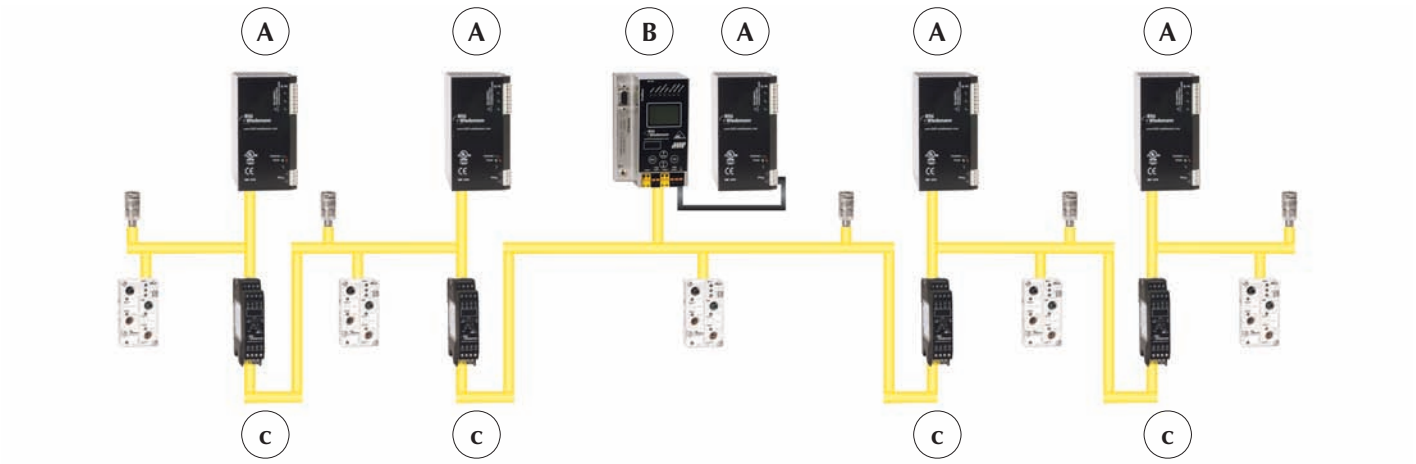
Enclosure Mounted AS-interface Repeater

The **REP-ASI BW1855** is an IP 20, DIN-rail mountable repeater for use an enclosure mounted AS-I extension solution. Network segments attached by a repeater are considered separate physical networks (trunk and drop lengths for each segment are determined as if the other segments are not present), but one logical network (addresses cannot be duplicated; the scanner and configuration tools work as a single network).

The repeater does not consume an address and is invisible to all the other devices on the network. The repeater supports a network extension of one full segment (an additional 100 m of AS-I cable). The REP-ASI BW1855 can be used in conjunction with an AS-I Tuner (ASI-TUNER BW1648 or ASI-TUNER-DIAG BW1843) to extend the network with segment lengths greater than 100 m. Repeaters can also be used to isolate power supplies on networks with multiple supplies, allowing greater than 8 A on the entire AS-I system (no individual segment may carry more than 8 A).

Up to two repeaters are allowed between any slave and the master. Placing the master in the middle of the system allows a maximum linear system of 500 m (if standard repeaters are used) or potentially 1000 m (if terminators and advanced repeaters are used), as shown in the diagram below.

A = Power supply
B = Master
C = Repeaters



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AS-I Repeater

- **Extend AS-I Network Length**
- **Isolate AS-I Power Segments**
- **IP65 Protection**
- **Fault LED Aids in Diagnostics**

REP-ASI BW1273*
REP-ASI-C1D2 BW1712
* Not ETL listed

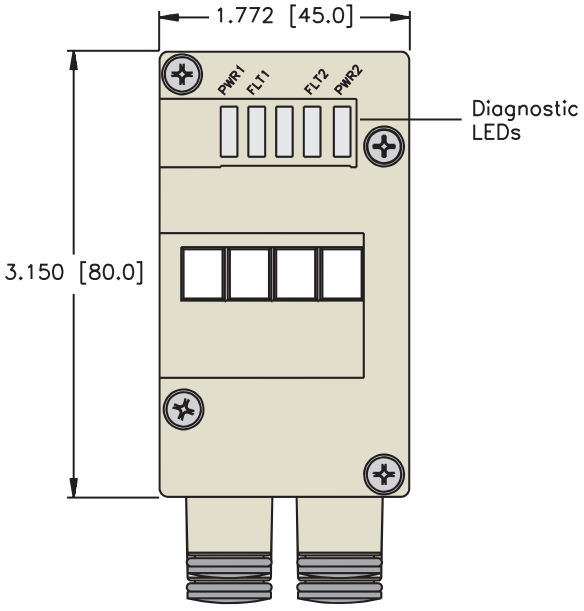
Electrical
- Operating Current: <60 mA from each segment (<120 mA total)

Power Distribution
- Each isolated segment is powered from it's respective AS-I power supply

Mechanical
- Operating Temperature: -10 to +55°C (+14 to +131°F)
- Protection:IP65
- Connection: Via standard AS-I base module (flat or round cable)

Material
- Housing: Plastic

Diagnostics (Physical)
- LEDs to indicate status of AS-I communication and power supply



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Machine Mounted AS-interface® Repeater

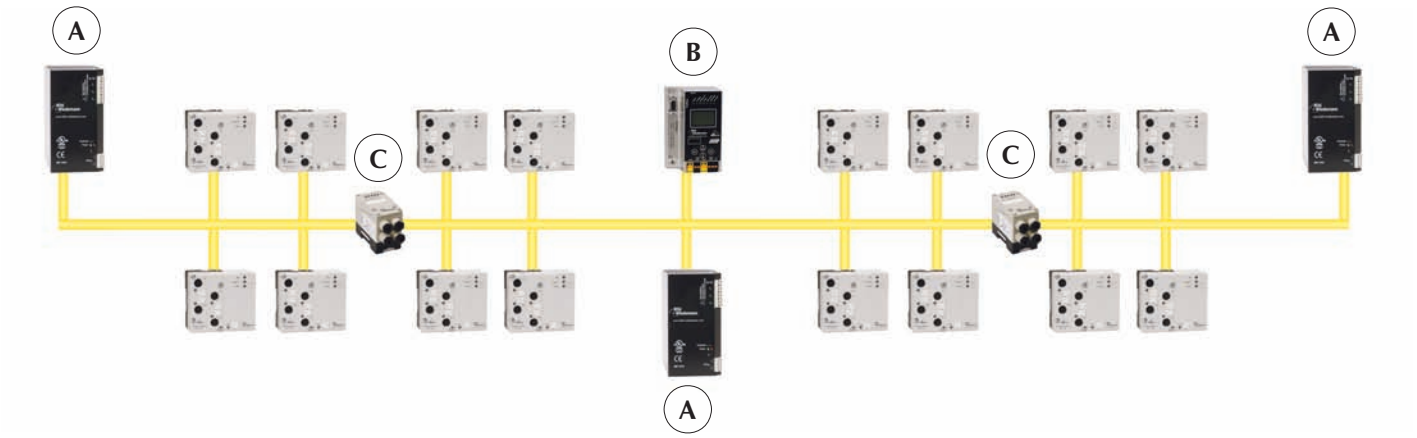
The **REP-ASI BW1273** is an IP 65 repeater for machine mounted AS-I extensions. Network segments attached by a repeater are considered separate physical networks (trunk and drop lengths for each segment are determined as if the other segments are not present), but one logical network (addresses cannot be duplicated; the scanner and configuration tools work as a single network).

The repeater does not consume an address and is invisible to all the other devices on the network. The **REP-ASI BW1273** supports a network extension of one full segment (an additional 100 m of AS-I cable). Repeaters can also be used to isolate power supplies on networks with multiple supplies, allowing greater than 8 A on the entire AS-I system (no individual segment may carry more than 8 A).

Up to two repeaters are allowed between any slave and the master. Placing the master in the middle of the system allows a maximum linear system of 500 m.

The **REP-ASI BW1273** physical wiring connections are made via standard AS-I base modules with two isolated ports (ASI-BM BW1181 for flat cable or ASI-BM BW1183 for round cable with screw terminal connections).

A = Power supplies
B = Master
C = Repeaters



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AS-I Tuners

- **Extend AS-I Network Length**
- **IP65 Protection**
- **Correct AS-I Communication Problems**
- **Extended Diagnostics Available**

ASI-TUNER BW1648*
ASI-TUNER-DIAG BW1843*
ASI-TUNER-C1D2 BW1715

* Not ETL listed

Electrical

- Operating Current: <60 mA (from AS-I)

Power Distribution

- AS-I Power supply

Mechanical

- Operating Temperature: 0 to +55 °C (+32 to +131°F)
- Protection:IP65

Material

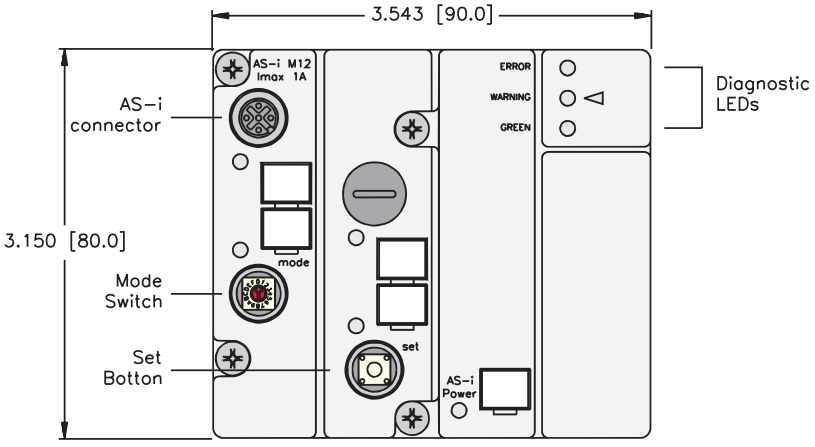
- Housing: Plastic

Diagnostics (Logical)

- BW1843 can be configured to be a slave on the AS-I network and report system and station health

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and power supply



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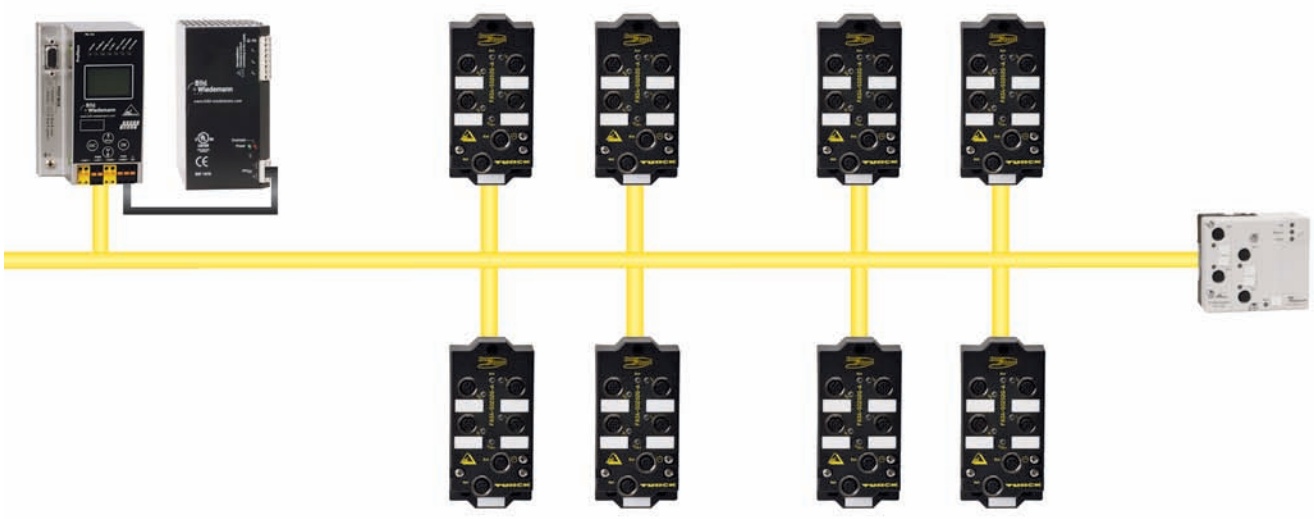
Machine Mounted AS-interface® Tuners

The **ASI-TUNER BW1648** and **ASI-TUNER-DIAG BW1843** are IP 65 tuners for machine mounted AS-I extension solutions. Tuners are active circuits designed to affect the impedance of an AS-I network so the system can communicate without errors at lengths longer than 100 m. The tuners are configured for the system by placing them in a "teach" mode where they "listen to" AS-I network traffic. In this mode, tuners cycle through LRC impedance values to find the setting where the errors are minimized. Once this value is found, tuners operate in the "run" mode. The tuners also provide a green/yellow/red LED indicating network status, so potential errors can be found early and corrected before they become critical.

The **ASI-TUNER BW1648** does not consume an address and is invisible to all the other devices on the network. The **ASI-TUNER-DIAG BW1843** may be configured as an AS-I slave to allow more detailed diagnostic information to be available as standard I/O data, as well as mailbox information per the AS-I v3.0 specification. The status of all AS-I slaves on the system, as well as the voltage level at the tuner, can be obtained in this mode. Tuners can be used to extend the network length up to 300 m for a single segment (without the need for a repeater). Ideal placement of the tuner on the network is at the furthest point from the power supply.

Tuners connect to the network via standard AS-I base modules (ASI-BM BW1180 for flat cable and ASI-BM BW1182 for round cable with screw terminal connections).



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AS-I Masters for OEM Applications

- **Board-level Masters**
- **Advanced AS-I Diagnostics**
- **8-bit Host Interface**
- **Small Form Factor**

ASI-MM-PCB BW1670
ASI-MM-PCB BW1588
ASI-MMPCB BW1554 (shown)

CE

Electrical

- Operating Current: <70 mA from AS-I, 100 mA from external supply (5 VDC)

Power Distribution

- AS-I and external supplies

Mechanical

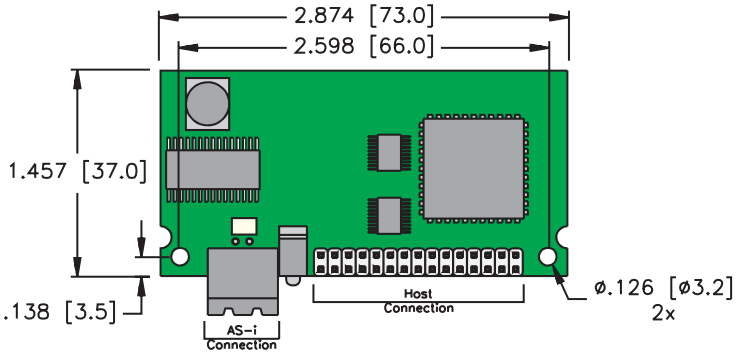
- Operating Temperature: 0 to +55 °C (+32 to +131°F)

Diagnostics (Logical)

- AS-I I/O errors can be reported via the peripheral fault bit for each slave (v2.1 and higher)

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and power supply (BW1554 only)



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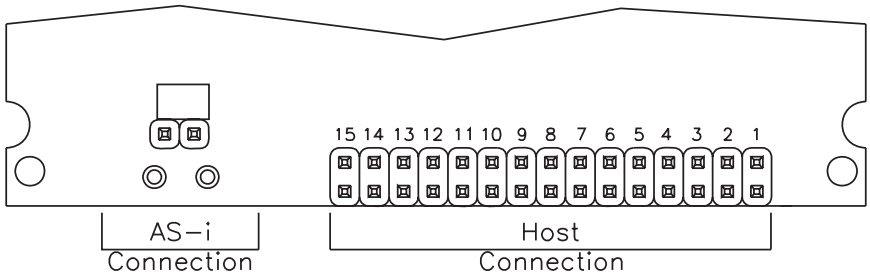
Part Number	AS-I Version	AS-I Connection	Diagram	# of AS-I Masters
ASI-MM-PCB BW1670*	2.1	Solder	A	1
ASI-MM-PCB BW1588	2.1	Solder	B	1
ASI-MM-PCB BW1554	2.1	Connector	C	1

A



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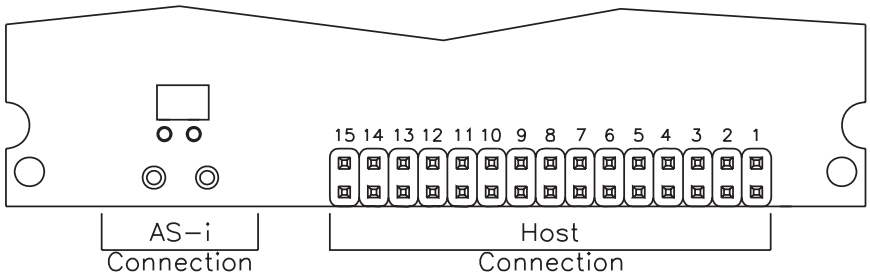
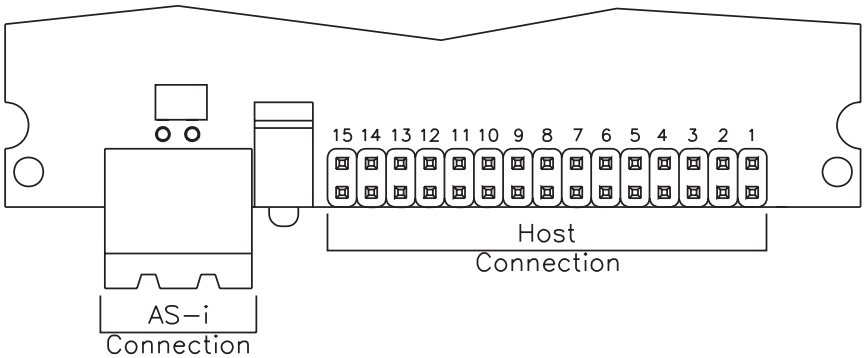


C



*Note: ASI-MM-PCB BW1670 is intended for use with the evaluation kit ASI-EVAL-KIT BW1565 (M108).

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OEM AS-I Slaves

- **PC-board Level Slaves**
- **Connection Options**
- **Various I/O Configurations**
- **Powered by AS-I**

ASI-IOM-0202-PCB BW1421 shown

CE

Electrical

- Operating Current: <200 mA from AS-I (including all I/O)

Power Distribution

- Inputs: AS-I supply
- Outputs: AS-I supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Vibration: 15 g @ 10...55 Hz

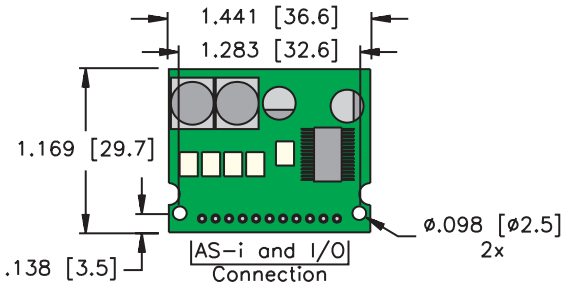
Diagnostics (Logical)

- I/O faults are indicated by the peripheral fault bit

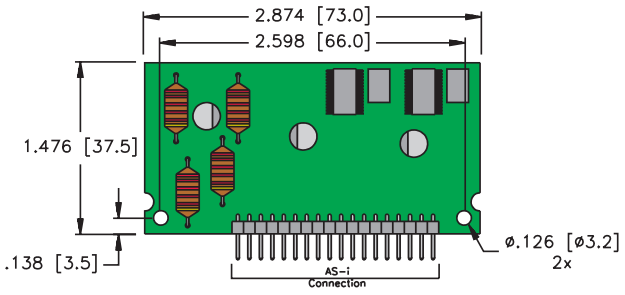
Diagnostics (Physical)

- One LED indicates an I/O fault for the slave

S



L



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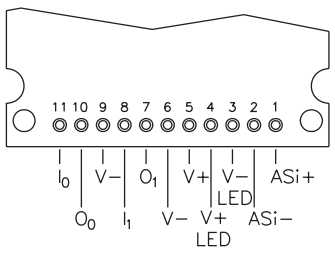
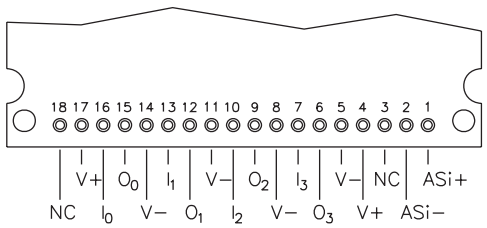
Part Number	Input Count	Output Count	Output Current (per Output)	Output Current (sum of all Outputs)	I/O Power	LEDs	Connector	A/B Address	Addresses	Slave Profile	Drawing	Pinout
ASI-IOM-0202-PCB BW1421	2	2	80 mA	80 mA	AS-I		NONE	Y	1	B.A-E	S	A
ASI-IOM-0202-PCB BW1443	2	2	80 mA	80 mA	AS-I		SCR	Y	1	B.A-E	S	A
ASI-IOM-0202-PCB BW1444	2	2	80 mA	80 mA	AS-I		PIN	Y	1	B.A-E	S	A
ASI-IOM-0403-PCB BW1386	4	3	80 mA	80 mA	AS-I		PIN	Y	1	7.A-E	L	C
ASI-IOM-0403-PCB BW1387	4	3	80 mA	80 mA	AS-I		SCR	Y	1	7.A-E	L	C
ASI-IOM-0404-PCB BW1218	4	4	100 mA	18 0mA	AS-I		PIN	N	1	7.0-F	L	B
ASI-IOM-0404-PCB BW1219	4	4	100 mA	180 mA	AS-I		SCR	N	1	7.0-F	L	B
ASI-IOM-0404-PCB-L BW1470	4	4	100 mA	180 mA	AS-I	X	SCR	N	1	7.0-F	L	B
ASI-IOM-0006-PCB BW1627	0	6	100 mA	180 mA	AS-I		SCR	Y	2	8.A-0	L	E
ASI-IOM-0800-PCB BW1351	8	0	-	-	AS-I		PIN	Y	2	0.A-2	L	D
ASI-IOM-0800-PCB BW1352	8	0	-	-	AS-I		SCR	Y	2	0.A-2	L	D

Note: SCR=Screw Terminal connection; PIN=Edge Pin connection

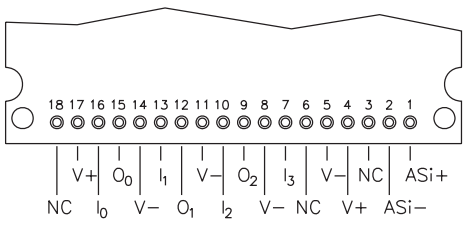
A



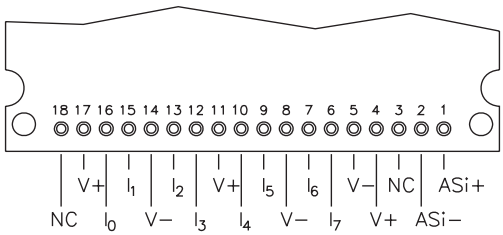
B



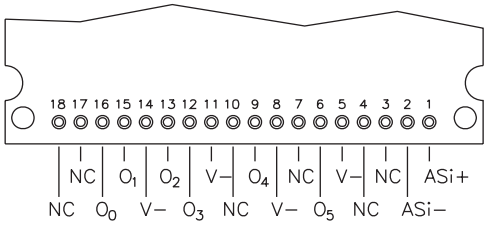
C



D



E



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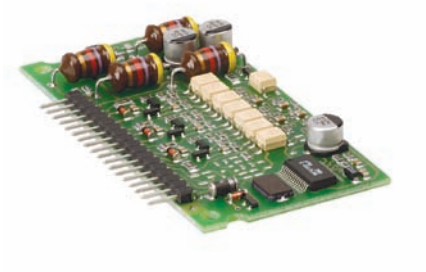
OEM AS-I Slaves

- **PC-board Level Slaves**
- **Connection Options**
- **A/B Address Support**
- **Powered by Auxiliary Power**



Electrical

- Operating Current: <20 mA from AS-I
- Input Current: <180 mA from AS-I (BW1628 only)
- Output Current: see table on facing page

Power Distribution

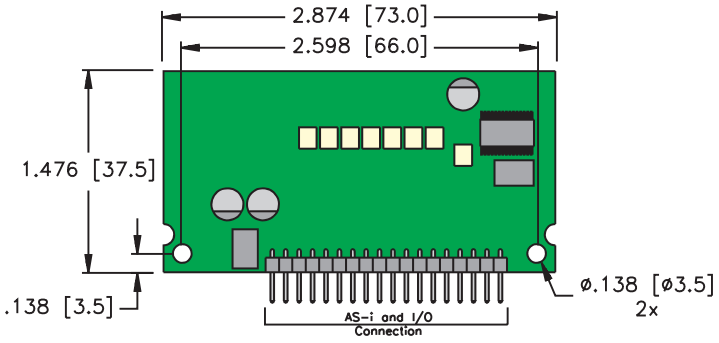
- Inputs: AS-I supply (BW1628)
  Auxiliary supply (BW1388, BW1389)
- Outputs: Auxiliary supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Vibration: 15 g @ 10 to 55 Hz

Diagnostics (Logical)

- I/O faults are indicated by the peripheral fault bit



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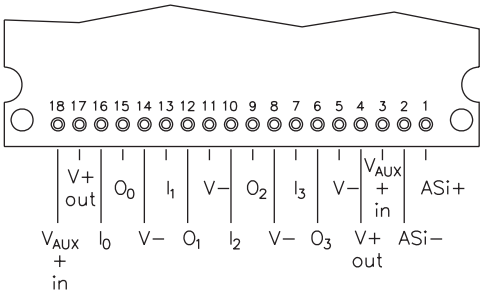
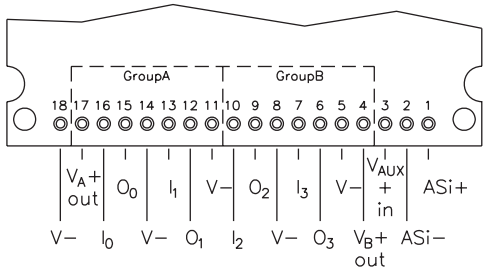
Part Number	Input Count	Output	Output Current (per	Output Current (sum of all Outputs)	I/O Power Source	LEDs	Connector	A/B Address	Addresses	Slave Profile	Drawing	Pinout
ASI-IOM-0404A-PCB-L-BW1628	4	4	150 mA	500 mA	AS-i/Aux	X	SCR	N	1	7.0-E	L	F
ASI-IOM-0404A-PCB-BW1388	4	4	100 mA	200 mA	Aux		PIN	N	1	7.0-F	L	G
ASI-IOM-0404A-PCB-BW1389	4	4	100 mA	200 mA	Aux		SCR	N	1	7.0-F	L	G

Note: SCR=Screw Terminal connection; PIN=Edge Pin connection

F



G



OEM AS-I Slaves

- **PC-board Level Slaves**
- **I/O Count Choices**
- **Multiple Slaves on One Board**
- **Powered by AS-I**

ASI-IOM-0808-PCB BW1898 shown

ASI-IOM-0808-PCB -BW1898
ASI-IOM-0808-PCB-V3-BW1899
ASI-IOM-1616-PCB-BW1900
ASI-IOM-1616-PCB-V3-BW1901

Electrical

- Operating Current: <400 mA (BW1898, BW1899), <500 mA (BW1900, BW1901) from AS-I (including all I/O)

Power Distribution

- Inputs: AS-I supply
- Outputs: AS-I supply

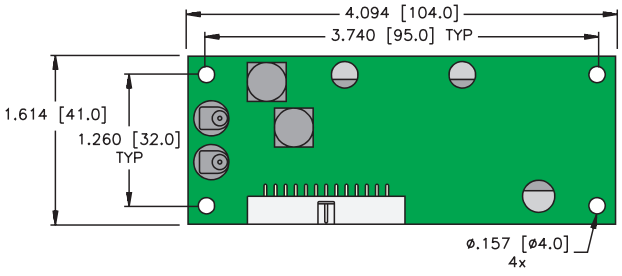
Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Vibration: 15 g @ 10 to 55 Hz

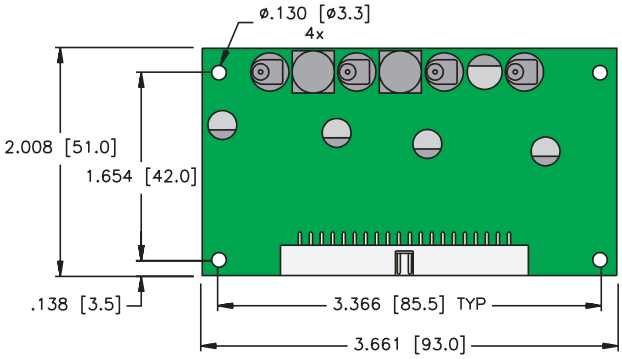
Diagnostics (Logical)

- I/O faults are indicated by the peripheral fault bit

M



M2



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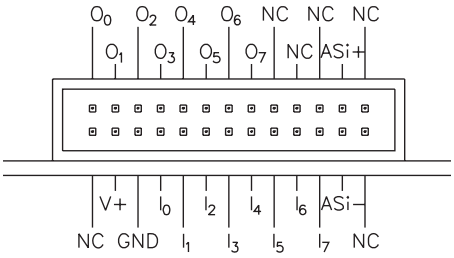
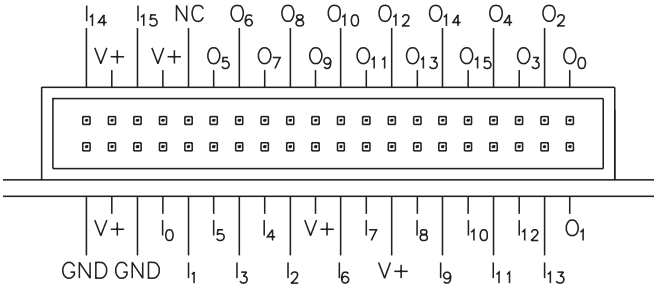
Part Number	Input Count	Output Count	Output Current (per Output)	Output Current (sum of all Outputs)	I/O Power	LEDs	Connector	A/B Address	Addresses	Slave Profile	Drawing	Pinout
ASI-IOM-0808-PCB -BW1898	8	8	70	200 mA	AS-I		CON	N	2	7.F-F-E	M	H
ASI-IOM-0808-PCB-V3-BW1899	8	8	70	200 mA	AS-I		CON	Y	2	7.A-7-7	M	H
ASI-IOM-1616-PCB-BW1900	16	16	70	200 mA	AS-I		CON	N	4	7.F-F-E	M2	I
ASI-IOM-1616-PCB-V3-BW1901	16	16	70	200 mA	AS-I		CON	Y	4	7.A-7-7	M2	I

Note: CON=Plug In connection

H



I



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OEM AS-I Slaves

- **PC-board Level Slave**
- **Relay Outputs**
- **For AC Control**
- **Powered by AS-I**

Electrical

- Operating Current: <85 mA from AS-I (including all I/O)
- Output Current: <10 A total (through relays)

Power Distribution

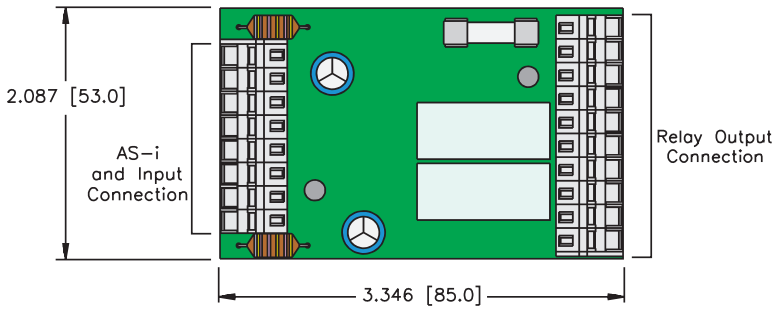
- Inputs: AS-I supply
- Outputs: AS-I supply (switching)

Mechanical

- Operating Temperature: 0 to +60°C (+32 to +140°F)

ASI-IOM-0202R-PCB BW1101

CE



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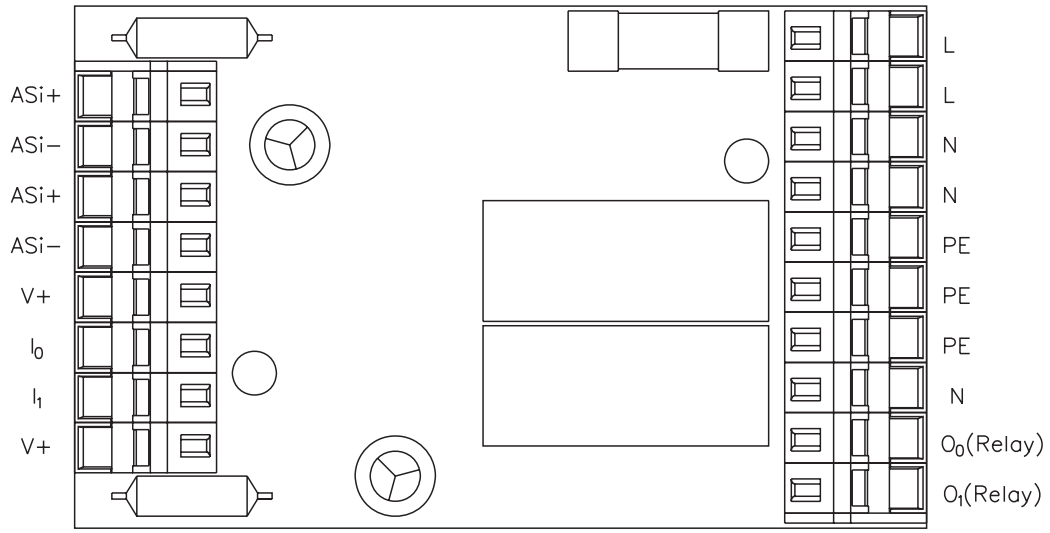
Part Number	Input Count	Output Count	Output Current (sum of all	I/O Power Source	LEDs	Connector	A/B Address	Addresses Consumed	Slave Profile	Drawing	Pinout
ASI-IOM-0202R-PCB BW1101	2	2	10 A	AS-I		CAG	N	1	B.F	R	J

Note: CAG=Cage Clamp connection

J



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OEM Power Converter

- **Coated PC-board**
- **Aux. Power From AS-I**
- **Can Eliminate the Need for a Separate Auxiliary Supply**

ASI-OEM-PWR BW1485

Electrical

- Operating Voltage: 20 to 30 VDC (from AS-I)
- Output Current: <1.5 A

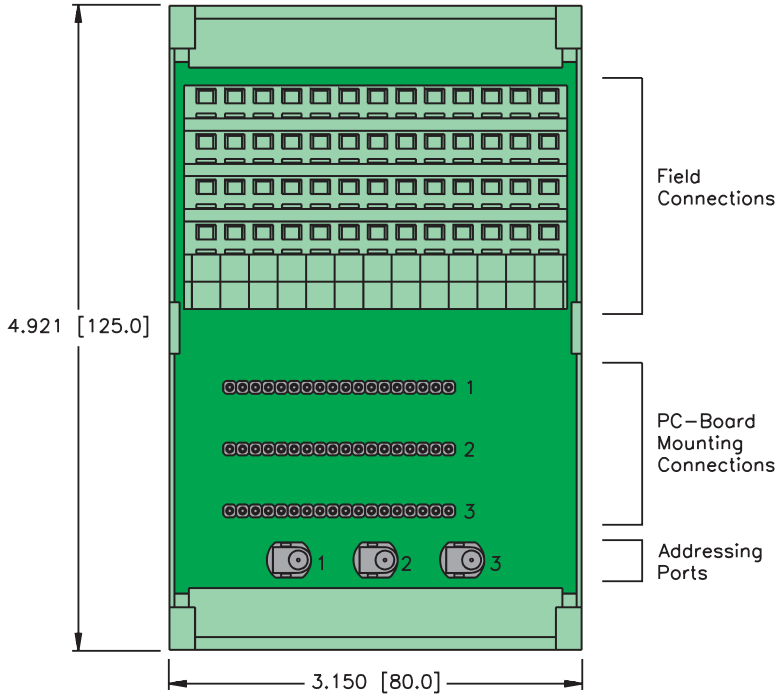
Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Vibration: 15 g @ 10 to 55 Hz

OEM AS-I Accessories

- **Carrier of OEM Slaves**
- **Holds Up To 3 Boards**
- **Supports Wiring Pin Connections**

ASI-PCB-CARRIER BW1484



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Notes:

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AS-I Power Supply

- **Provide Decoupled Power to AS-I**
- **DIN-rail Mounting**
- **Status LEDs**
- **Maximum 4 A to AS-I**

Electrical

- Input Voltage: 90 to 265 VAC (BW1649)
  115 VAC or 230 VAC, switchable (BW1997)
- Input Current: ~0.6 A @ 230 VAC (BW1649)
  ~1.2 A @ 230 VAC (BW1997)
- Output Current: 4 A (BW1649)
  8 A (BW1997)

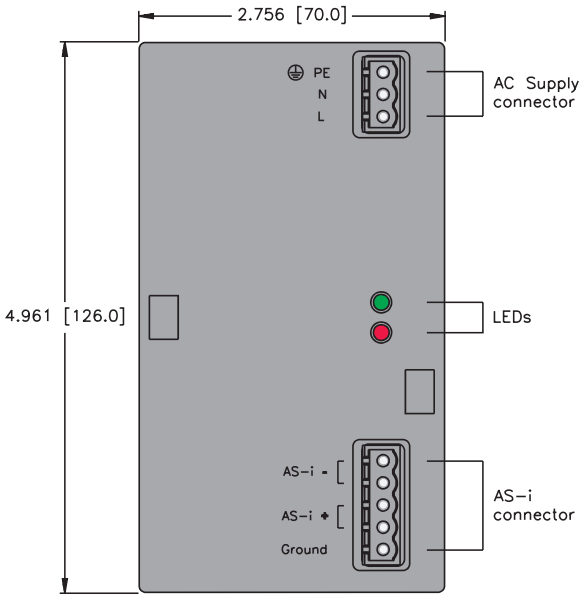
Mechanical

- Operating Temperature: -10 to +55°C (-13 to +131°F)
- Protection: IP 20

ASI-PS BW1649
ASI-PS-8A BW1997*

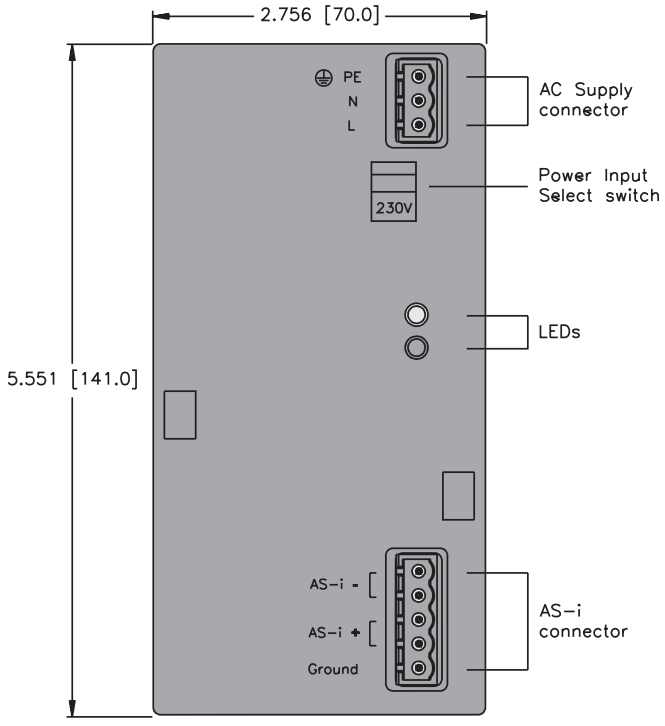
* Not UL listed

BW1649



Depth = 5.079 (129.0)

BW1997



Depth = 5.945 (151.0)

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AS-I Power Supply

- **Provide Decoupled Power to AS-I**
- **DIN-rail Mounting**
- **Status LEDs**
- **Power from 24VDC Supply**

Electrical

- Input Voltage: 20 to 32 VDC (24 VDC nominal)
- Input Current: <6.3 A (fused internally)
- Output Voltage: 29.5 to 31.6 VDC, AS-I decoupled
- Output Current: 2 A

Mechanical

- Operating Temperature: 0 to +55°C (32 to +131°F)
- Protection: IP 20

ASI-PS-24/30VDC-2A BW1760

CE

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DC Power Supplies

- **For Use With Stainless Steel AS-I Gateways**
- **30 VDC Supplies**
- **Power One or More AS-I Networks with One Supply**

Electrical

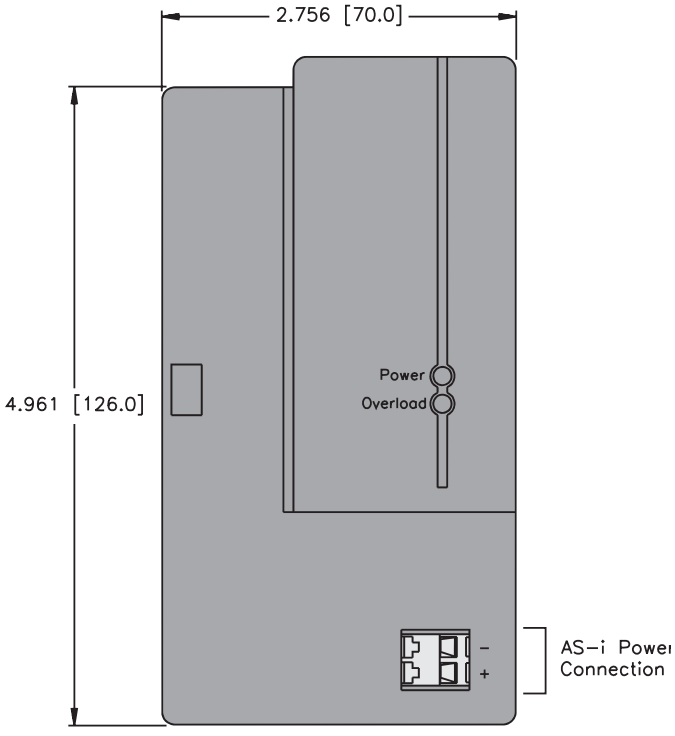
- Input Voltage: 93 to 132 VAC / 187 to 265 VAC
- Input Current: 0.9 A @ 230 VAC / 2.2 A @ 115 VAC (BW1597)
  1.8 A @ 230 VAC / 4.2 A @ 115 VAC (BW1593, BW1598)
- Output Current: 4 A, limited at 6 A (BW1597)
  8 A, limited at 12 A (BW1593, BW1598)

Mechanical

- Operating Temperature: 0 to +60°C (+32 to +140°F)

PS-30VDC-8A BW1593
PS-30VDC-4A-C1D2 BW1597*
PS-30VDC-8A-C1D2 BW1598*

* Not UL



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3-Phase Power Supply

- **For Use with AS-I Decoupling Products**
- **30 VDC Output**
- **Power One or More AS-I Networks with One Supply**

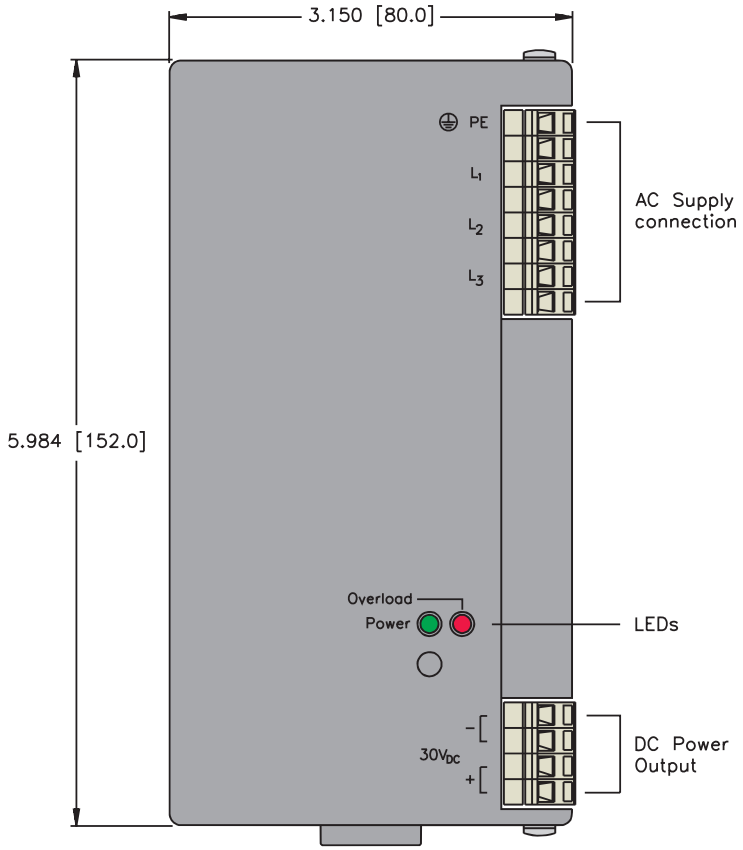
Electrical

- Input Voltage: 3 x 340 to 550 VAC (3-phase)
- Input Current: 3 x 0.7 A @ 400 VAC
- Output Current: <8 A (DC)

Mechanical

- Operating Temperature: 0 to +55°C (32 to +131°F)

PS-30VDC-3PH BW1676



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AS-I Power Extenders

- **Convert Standard Power to AS-I**
- **2.8 or 4 A Available**
- **IP 65 Protection**
- **Use One Supply for Multiple Segments**

ASI-PE BW1197*
ASI-PE BW1477*
ASI-PE-2.8A-C1D2 BW1713
ASI-PE-4A-C1D2 BW1714

* Not ETL Listed

Electrical

- Input Voltage: 30 VDC
- Output Voltage: 30 VDC
- Output Current: 2.8 A, limited to 3 A (BW1197, BW1713)
  4 A, limited to 6 A (BW1477, BW1714)

Mechanical

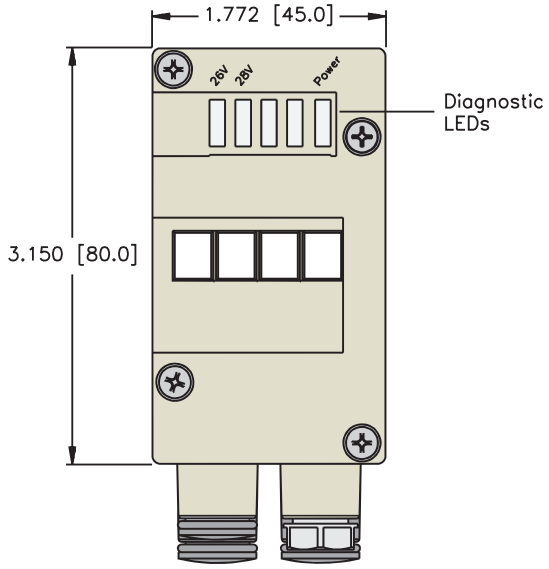
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65

Material

- Housing: Plastic

Diagnostics (Physical)

- LEDs to indicate power supply status



Note: AS-I and power connections are made via standard AS-I base modules with two isolated ports (ASI-BM BW1181 for flat cable, ASI-BM BW1183 for round cable with screw terminals). See pages E105-106.

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AS-I Power Decoupler

ASI-PE-2 BW1943

- **Convert Standard Power to AS-I**
- **4 A per Network**
- **IP 20 Protection**
- **Use One Supply for Multiple Segments**

Electrical

- Input Voltage: 30 VDC
- Output Voltage: 30 VDC
- Output Current: 4 A max. For each of up to 2 isolated AS-I networks

Mechanical

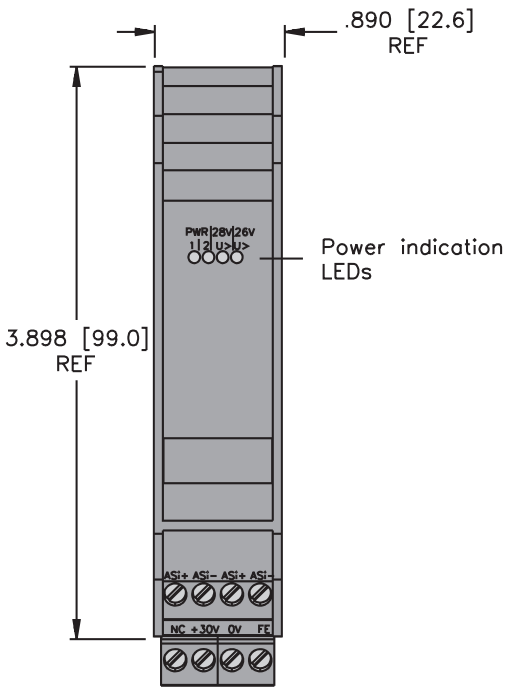
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Plastic

Diagnostics (Physical)

- LEDs to indicate power supply status



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AS-I Safety Monitors

ASI-SM-1 BW1764
ASI-SM-2 BW1765

- **AS-I Safety-at-Work**
- **1 or 2 Safety Circuits**
- **Emergency Stop System over AS-I**
- **Fast Diagnosis of E-Stops**

Electrical

- Operating Current: ~45 mA from AS-I
- ~150 mA (BW1764), ~200 mA (BW1765) from separate power
- Response Delay: <40 ms

Mechanical

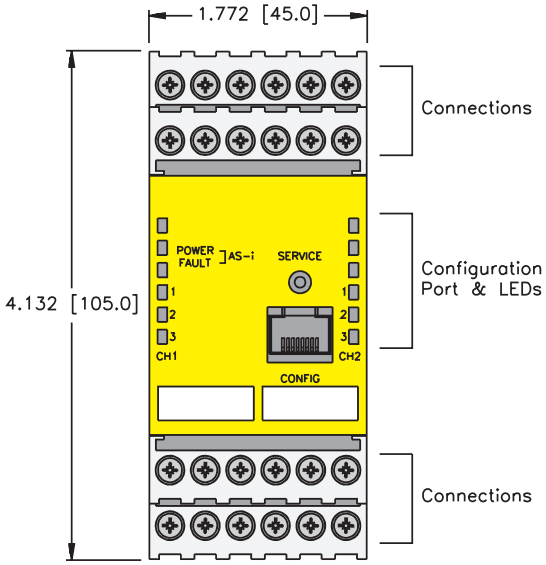
- Operating Temperature: -20 to +60°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- E-stop fault information is transmitted via the AS-I master

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and e-stop system



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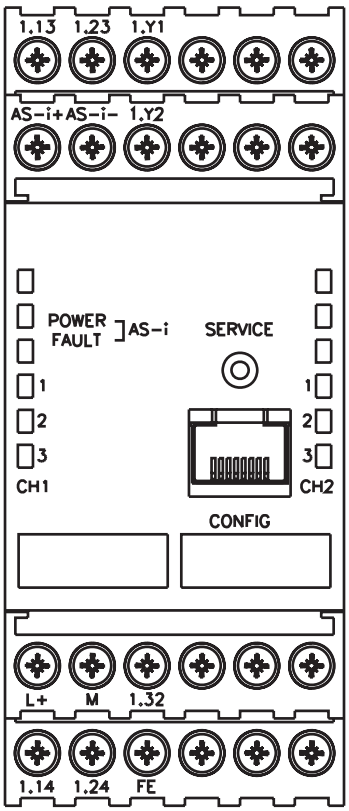
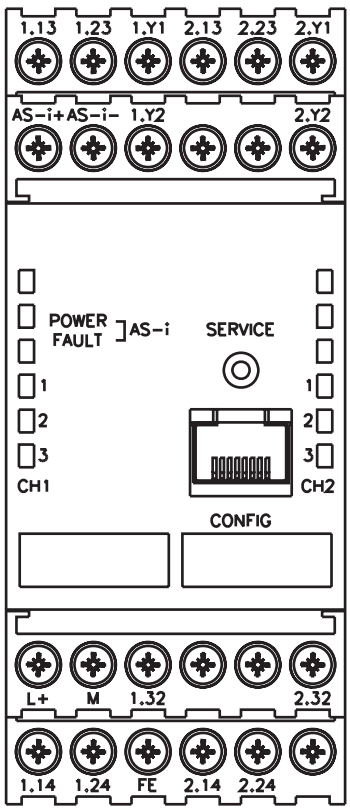
Part Number	Number of Safety Circuits	Connection Diagram	Configuration Port
ASI-SM-1 BW1764	1	A	X
ASI-SM-2 BW1765	2	B	X

A



L+ = +24 VDC
M = Ref. Gnd
FE = Earth Gnd
1.Y1 = EDM 1
1.Y2 = Start 1
1.13/1.14 = Output 1
1.23/1.24 = Output 2
1.32 = Indicator Output

B



L+ = +24 VDC
M = Ref. Gnd
FE = Earth Gnd
1.Y1 = EDM 1
1.Y2 = Start 1
1.13/1.14 = Output 1 (Circuit 1)
1.23/1.24 = Output 2 (Circuit 1)
1.32 = Indicator Output (Circuit 1)
2.Y1 = EDM 2
2.Y2 = Start 2
2.13/2.14 = Output 1 (Circuit 2)
2.23/2.24 = Output 2 (Circuit 2)
2.32 = Indicator Output (Circuit 2)

Note: AS-I safety monitors are programmed via the ASIMON BW1770 software (sold separately).

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OEM AS-I Safety Slaves

ASI-IOM-E0202A-PCB-ES BW1896
ASI-IOM-E0202A-PCB-ES BW1751
ASI-IOM-E0202A-PCB-ES BW1801

CE

- **PC-board Slaves**
- **AS-I Safety-at-Work**
- **Emergency Stop System Over AS-I**
- **Ideal for Push Button Stations**

Electrical

- Operating Current: <80 mA from AS-I
- Output Current: <100 mA per output from aux. power

Power Distribution

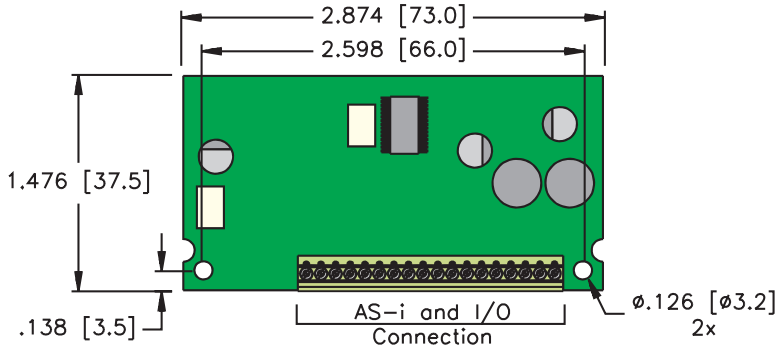
- Inputs: AS-I supply
- Outputs: Auxiliary supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Vibration: 15 g @ 10 to 55 Hz

Diagnostics (Logical)

- AS-I safety information can be accessed from the safety monitor



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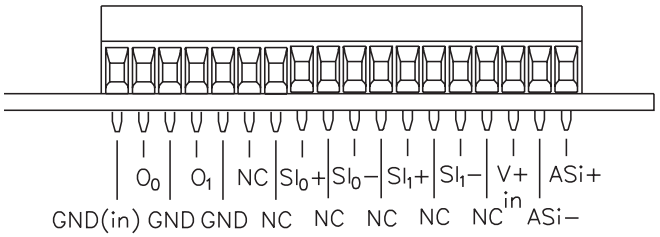
Part Number	Input Count	Output Count	Output Current (sum of all	I/O Power Source	LEDs	Connector	A/B Address	Addresses Consumed	Slave Profile	Drawing	Pinout
ASI-IOM-E0202A-PCB-ES BW1896	2	2	100 mA	AS-i/Aux		REM	N	1	7.B-0	S	K
ASI-IOM-E0202A-PCB-ES BW1751	2	2	100 mA	AS-i/Aux		SCR	N	1	7.B-0	S	K
ASI-IOM-E0202A-PCB-ES BW1801	2	2	100 mA	AS-i/Aux		PIN	N	1	7.B-0	S	K

Note: REM=Pull-out COMBICON style connection; SCR=Screw Terminal connection; PIN=Edge Pin connection

K



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AS-I Couplers

- **Connect 2 AS-I Networks Together**
- **Communicate Via Internal Slaves**

ASI-CPL BW1187
ASI-CPL BW1280

CE

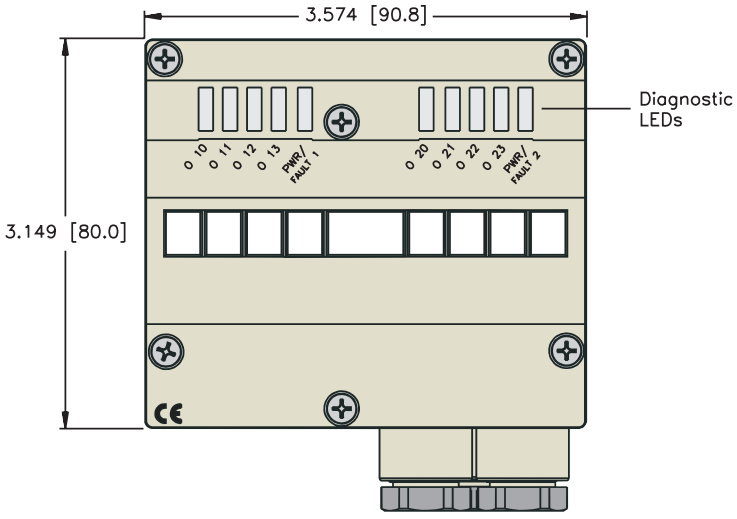
Electrical
- Operating Current: <80 mA per AS-I Network

Power Distribution
- From each AS-I network

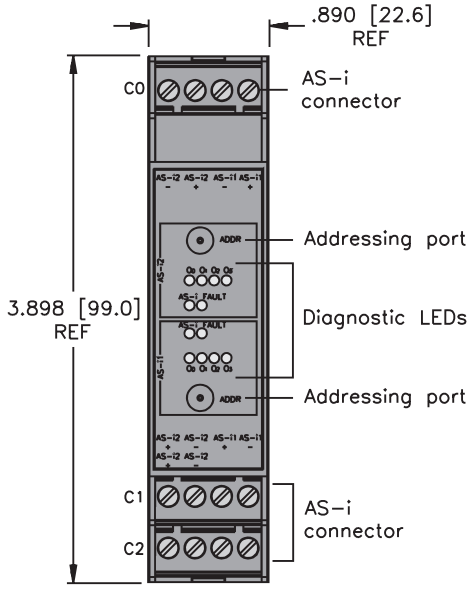
Mechanical
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20 (BW1187), IP65 (BW1280)

Material
- Housing: Plastic

Diagnostics (Physical)
- LEDs to indicate status of AS-I communication and power supply



ASI-CPL BW1280



ASI-CPL BW1187

Note: ASI-CPL BW1280 makes connections to each AS-I network via standard base modules with two isolated ports (ASI-BM BW1181 for flat cable, ASI-BM BW1183 for round cable with screw terminals). See pages 105-106.

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AS-interface® Couplers

AS-I Couplers provide a means to route data between two PLC's using AS-I. The couplers (similar to a DeviceNet™ spanner) directly connect AS-I networks, eliminating the need for a high level control network pyramid. This simple approach is extremely powerful and economical. It is simple because the coupler appears as a standard AS-I slave to each PLC; any AS-I scanner can send I/O data to the coupler without additional software or complex configuration procedures. It is economical because it replaces the high level control network, eliminating two control cards, wiring, conduit and programming.

Theory of Operation

A coupler transfers data between PLC A and PLC B by appearing as I/O to each PLC. The coupler immediately copies the output data from PLC A to the input data for PLC B. Similarly, PLC B's output data is copied to PLC A's input data. The data transfer may be four bits in each direction (the maximum allowable data size for one slave on one AS-I scan cycle).

Electrically

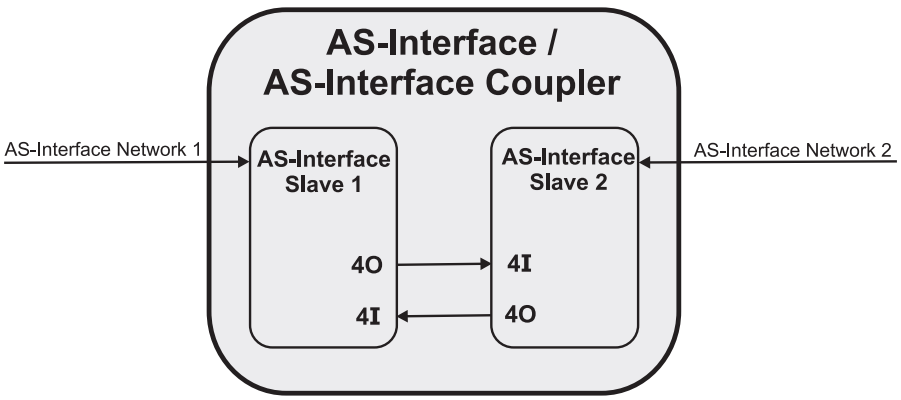
The coupler optically isolates network A from network B; the networks do not interact electrically in any way. The coupler is powered internally by the AS-I power supply for the two connected networks.

Addressing

Because the coupler is essentially two AS-I devices, one on network A and one on network B, it must be addressed as a slave on each network. The addresses for the two networks are independent of each other and do not need to be set to the same value.

Coupler Topology

The coupler is typically used to correct and coordinate multiple work cells.



Note: Physical AS-I connections are made via standard dual isolated port AS-I base modules (ASI-BM BW1181 for flat cable or ASI-BM BW1183 for round cable with screw terminal connections) on pages E105-106.

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Network Master Simulators

- **Connect AS-I Gateways to PC for Configuration and Troubleshooting**
- **Test and Troubleshoot Network Devices**

MS-DP BW1131

MS-DP BW1131 is a PROFIBUS®-DP Master Simulator designed to connect PROFIBUS stations to a PC via the serial port. It is ideal for testing, troubleshooting and demonstrating PROFIBUS products. It communicates at rates up to 19.2 kbaud.

MS-DP BW1257

MS-DP BW1257 is a PROFIBUS-DP Master Simulator designed to connect PROFIBUS stations to a PC via the serial port. It features DPV1 communication capability. It is ideal for testing, troubleshooting and demonstrating PROFIBUS products. It communicates at rates up to 19.2 kbaud.

MS-DP BW1258

MS-DP BW1258 is a PROFIBUS-DP Master Simulator designed to connect PROFIBUS stations to a PC via the serial port. It features DPV1 communication capability. It is ideal for testing, troubleshooting and demonstrating PROFIBUS products. This version is powered from a separate 24 VDC supply, and communicates at rates up to 1.5 Mbaud.

IC-232-485 BW1094

IC-232-485 BW1094 is an interface converter that allows RS-485 devices to be connected to a PC RS232 serial port. It is used for connecting the RS-485 AS-I masters to the AS-I Control Tools software for configuration and maintenance.

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MS-DN BW1420

MS-DN BW1420 is a DeviceNet™ Master Simulator designed to connect DeviceNet stations to a PC via the USB port. It is ideal for testing, troubleshooting and demonstrating DeviceNet products.

MS-DN BW1625

MS-DN BW1625 is a DeviceNet Master Simulator designed to connect DeviceNet stations to a PC via the PCI backplane. It is ideal for testing and troubleshooting DeviceNet products.

MS-CO BW1453

MS-CO BW1453 is a CANopen Master Simulator designed to connect CANopen stations to a PC via the USB port. It is ideal for testing, troubleshooting and demonstrating CANopen products.

CORD-DSUB BW1097

CORD-DSUB BW1097 is an RS-485 compatible cord that connects IP 65 masters and gateways (i.e. ASI-DPG BW1253) to a PC for commissioning and programming.

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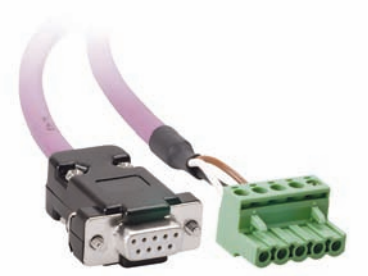
CORD-DSUB BW1058

CORD-DSUB BW1058 is a serial 9-in DSUB extension cord that connects masters and gateways to a PC for commissioning and programming.

CORD-DSUB BW1226



CORD-DSUB BW1226 is a CAN compatible cord that connects DeviceNet™ and CANopen gateways to the DeviceNet master simulators (BW1420, BW1625) for commissioning and programming.

ASI-PD BW1646

ASI-PD BW1646 is a handheld addressing tool for AS-I. It also allows the user to test I/O and slave functionality.

ASI-ANALYZER BW1415

The **ASI-ANALYZER BW1415** is a diagnostic and troubleshooting tool for AS-I systems. The analyzer displays the status of each slave on the network, as well as other details (such as power supply level), and can be used to provide diagnostics for low level AS-I messages. It allows the user to track and observe potential communication failures before they become real problems.

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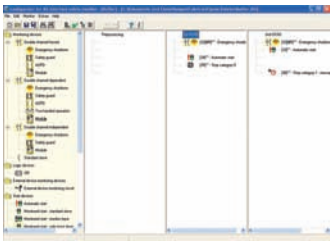
ASI-MON BW1770

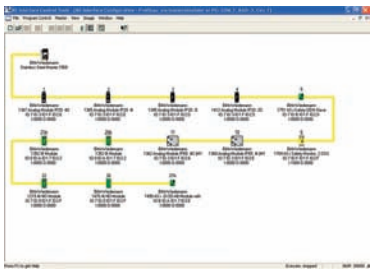


ASI-MON BW1770 is a Windows program for use in configuring and diagnosing AS-I Safety at Work systems using the AS-I Safety Monitors. Connection to the safety monitors is made via the PC serial port.

ASI-SIM-SW BW1902

ASI-SIM-SW BE1902 is a MS Windows program that allows simulation and download of AS-I control programs for supported AS-I masters (masters with mini PLC capability). The package includes the ASI-SIM software, ASI-CT BW1203 AS-I Control Tools program and a cable to connect to the stainless steel programming port.

ASI-CT-SS BW1602
ASI-CT-AB BW1563
ASI-CT BW1203



AS-I Control Tools is a MS Windows program for commissioning and programming Bihl+Wiedemann AS-I masters and gateways. The program allows the user to set addresses of slaves, test and manipulate I/O and view diagnostic information.

The **BW1602** package includes a cable to connect gateways in the stainless steel housing to a PC serial port.

The **BW1563** package includes a cable to connect the ASI-SCAN-AB BW1416 and ASI-SCAN-AB BW1488 PLC cards to a PC serial port.

ASI-EVAL-KIT BW1565

The **ASI-EVAL-KIT BW1565** enables easy commissioning of the AS-I OEM master module (ASI-MM-PCB BW1670, p. E79-80). The carrier board has a 5 V controller and an RS232 converter to communicate with the OEM module via the AS-I Control Tools software. The board also has a terminal connector for connection to the AS-I system.

The kit is designed to aid users in developing applications for the OEM AS-I masters.

ASI-TERM BW1644

ASI-TERM BW1644 is an AS-I terminator designed to allow an AS-I segment to be extended up to 200 m. It includes an LED for basic system diagnostic information. It is a passive device, used in a similar manner to the active AS-I tuner (pages E69-70).

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AS-I Standard Base Modules

- **Connect IP 65 Stations to AS-I and Power**
- **Round or Flat Cable Supported**

ASI-BM BW1180

Standard AS-I base module with two AS-I flat cable ports.

ASI-BM BW1181

Standard AS-I base module with one AS-I flat cable port and one isolated flat cable port. For use with AS-I devices requiring two separate connections (i.e. repeaters, power extenders, couplers, slaves with auxiliary powered I/O).

ASI-BM BW1438

Standard AS-I base module with two AS-I flat cable ports. Includes addressing port for handheld device.

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ASI-BM BW1182

Standard AS-I base module with two AS-I round cable ports. Connections are made via screw terminals.

ASI-BM BW1183

Standard AS-I base module with one AS-I round cable port and one isolated round cable port. For use with AS-I devices requiring two separate connections (i.e. repeaters, power extenders, couplers, slaves with auxiliary powered I/O). Connections are made via screw terminals.

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AS-interface® Media

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AS-interface®, Selection Guide

Cables
N4 - N8

Junctions
N9 - N27

Conduit Adapters
N29

Tees
N31

Gender Changers
N32

Field Wireable Tees
N33

Flat Cable and Adapters
N34

Receptacles
N35 - N42

Field Wireable Connectors
N43

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Notes:

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AS-interface®, Cable Specifications

- **AS-interface Cable that Meets the Requirements of EN50295e for Communication up to 167 Kbaud**
- **Maximum Cable Length per Segment is 100 Meters**

Figure A

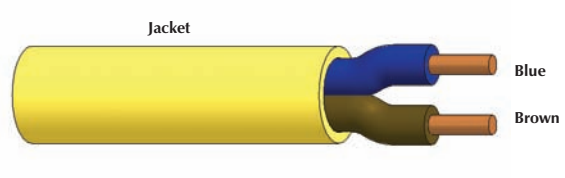
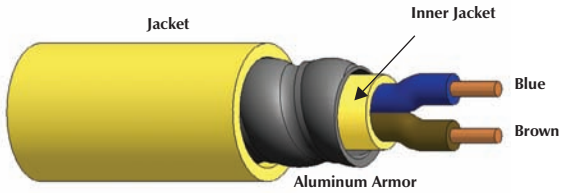


Figure B



Type	Approvals	Data Pair		Outer Jacket	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.		
252BK AWM 2517 105°C 300 Volts	**NEC ITC** PLTC **CEC** [CMG]	2/18 AWG BU/BN	6.6 Ohms PVC	PVC Black 6.0 mm (.235 in)	RB50791-*M 34.4 lbs.	**A**
254 AWM 2517 105°C 300 Volts	**NEC ITC** PLTC Open Wiring Direct Burial **CEC** [CMG]	2/16 AWG BU/BN	4.1 Ohms PVC/Nylon	PVC Yellow 7.3 mm (.285 in)	RB50852-*M 53 lbs.	**A**
254B AWM 2517 105°C 300 Volts	**NEC ITC** PLTC Open Wiring Direct Burial **CEC** [CMG]	2/16 AWG BU/BN	4.1 Ohms PVC/Nylon	PVC Blue 7.3 mm (.285 in)	RB50962-*M 53 lbs.	**A**
255A 105°C 300 Volts	**NEC ITC** PLTC **CEC** [CMG] HL BCD	2/16 AWG BU/BN	4.1 Ohms PVC	Armor PVC Yellow 13.5 mm (.530 in)	RB50966-*M 105 lbs. ***armorfast*** ®	**B**
256 AWM 21002 105°C 600 Volts	**NEC** AWM **CEC** AWM I/II A/B FT1	2/16 AWG BU/BN	4.5 Ohms PE	TPE Yellow 6.2 mm (.244 in)	RB51179-*M 36 lbs. ***flexlife-10*** ® †	**A**
257 AWM 21002 105°C 300 Volts	**NEC** PLTC/ITC **CEC** AWM I/II A/B FT4	2/16 AWG BU/BN	4.1 Ohms PE	PUR Yellow 7.3 mm (.285 in)	RB51178-*M 53 lbs.	**A**

* Indicates length in meters.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.
† See page A6 for ***flexlife-10*** performance.

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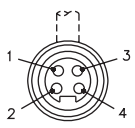
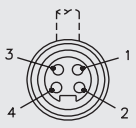
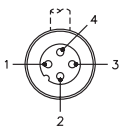
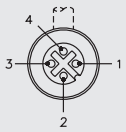
AS-interface®, Cable and Cordset Selection Matrix

			minifast ®				*eurofast* ®
			Pin (Male)		Socket (Female)		Pin (Male)
			1 RSM	2 WSM	3 RKM	4 WKM	5 RSC
		Bare	RSM 25x-*M	WSM 25x-*M	RKM 25x-*M	WKM 25x-*M	RSC 25x-*M
minifast	Pin (Male)	1 RSM	RSM RSM 25x-*M	RSM WSM 25x-*M	RSM RKM 25x-*M	RSM WKM 25x-*M	RSM RSC 25x-*M
		2 WSM		WSM WSM 25x-*M	WSM RKM 25x-*M	WSM WKM 25x-*M	WSM RSC 25x-*M
	Socket (Female)	3 RKM			RKM RKM 25x-*M	RKM WKM 25x-*M	RKM RSC 25x-*M
		4 WKM				WKM WKM 25x-*M	WKM RSC 25x-*M
eurofast	Pin (Male)	5 RSC					RSC RSC 25x-*M
		6 WSC					
	Socket (Female)	7 RKC					
		8 WKC					

See pages N7-N8 for dimensional drawings.

* Indicates length in meters.
x Indicates cable type.
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.
For stainless steel coupling nuts change part number RSM… to RSV, WSM… to WSV. For ***eurofast armorfast*** ® change part number RSC… to RSA.

minifast		Pinouts	*eurofast*	
Male	Female		Male	Female
		1. Brown (+ Voltage) 2. N/C 3. Blue (- Voltage) 4. N/C		

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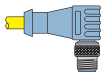
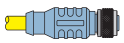
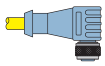
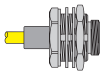
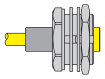
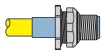
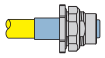
AS-interface®, Cable and Cordset Selection Matrix

eurofast®			*minifast*® Bulkhead		*eurofast* Bulkhead	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6  WSC	7  RKC	8  WKC	9  RSFP	10  RKFP	11  FSFD	12  FKFD
WSC 25x-*M	RKC 25x-*M	WKC 25x-*M	RSFP 25x-*M	RKFP 25x-*M	FSFD 25x-*M	FKFD 25x-*M
RSM WSC 25x-*M	RSM RKC 25x-*M	RSM WKC 25x-*M	RSM RSFP 25x-*M	RSM RKFP 25x-*M	RSM FSFD 25x-*M	RSM FKFD 25x-*M
WSM WSC 25x-*M	WSM RKC 25x-*M	WSM WKC 25x-*M	WSM RSFP 25x-*M	WSM RKFP 25x-*M	WSM FSFD 25x-*M	WSM FKFD 25x-*M
RKM WSC 25x-*M	RKM RKC 25x-*M	RKM WKC 25x-*M	RKM RSFP 25x-*M	RKM RKFP 25x-*M	RKM FSFD 25x-*M	RKM FKFD 25x-*M
WKM WSC 25x-*M	WKM RKC 25x-*M	WKM WKC 25x-*M	WKM RSFP 25x-*M	WKM RKFP 25x-*M	WKM FSFD 25x-*M	WKM FKFD 25x-*M
RSC WSC 25x-*M	RSC RKC 25x-*M	RSC WKC 25x-*M	RSC RSFP 25x-*M	RSC RKFP 25x-*M	RSC FSFD 25x-*M	RSC FKFD 25x-*M
WSC WSC 25x-*M	WSC RKC 25x-*M	WSC WKC 25x-*M	WSC RSFP 25x-*M	WSC RKFP 25x-*M	WSC FSFD 25x-*M	WSC FKFD 25x-*M
	RKC RKC 25x-*M	RKC WKC 25x-*M	RKC RSFP 25x-*M	RKC RKFP 25x-*M	RKC FSFD 25x-*M	RKC FKFD 25x-*M
		WKC WKC 25x-*M	WKC RSFP 25x-*M	WKC RKFP 25x-*M	WKC FSFD 25x-*M	WKC FKFD 25x-*M

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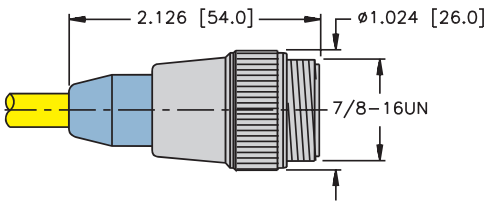
AS-interface®, *minifast*® Cordset and Receptacle Connector Dimensions

Specifications

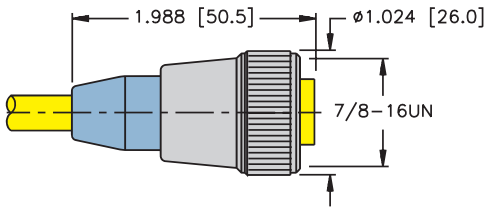
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

1



RSM .. **Pages N5**

3



RKM .. **Pages N5**

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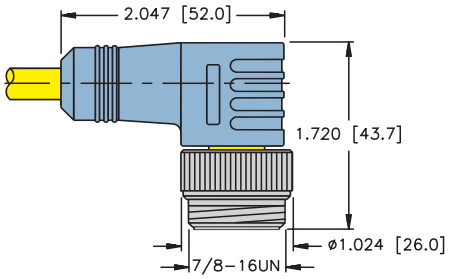

WSM .. **Pages N5**

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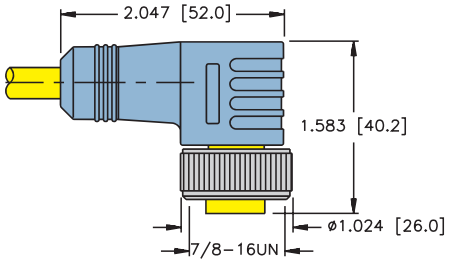

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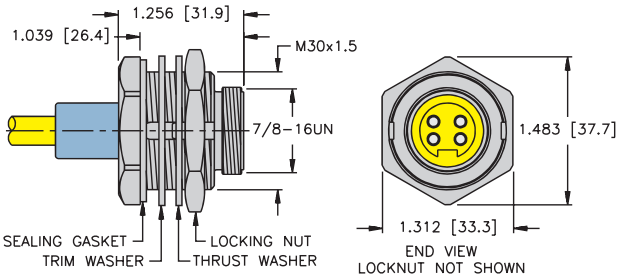
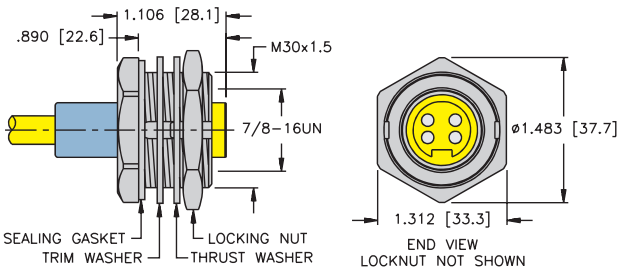


RSFP .. **Pages N6**

10



RKFP .. **Pages N6**

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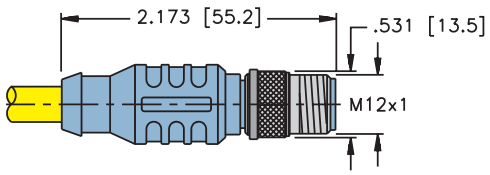
AS-interface®, *eurofast*® Cordset Connector Dimensions / Configuration

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40°C to +105°C (-40° to +221°F)

5



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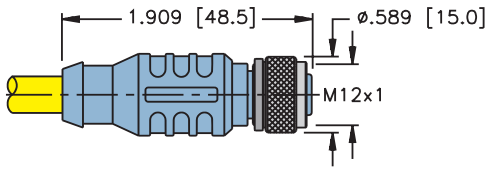
7



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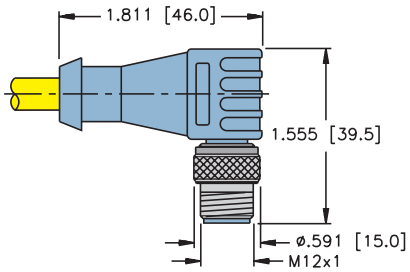

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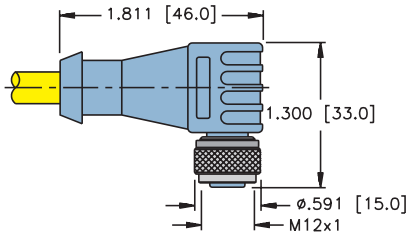

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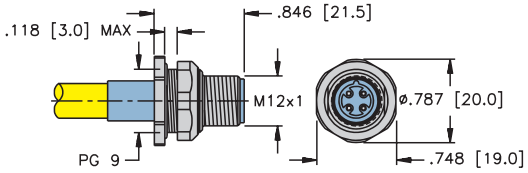

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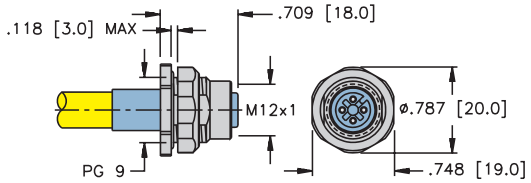

FKFD .. **Pages N5 - N6**

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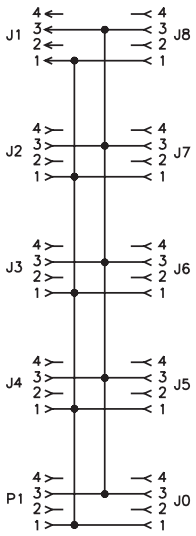
AS-interface®, *minifast*® to *eurofast*® Passive Multiport Junction (Brick)

- For Connecting I/O in Concentrated Areas
- Available in Standard and With Short-Circuit Protection

Part Number	Application	Wiring Diagram
JBBS-25-E812	8 port Junction Tee • (7/8-16UN) ***minifast*** bus-in/bus-out connections • Eight (M12x1) ***eurofast*** device ports	

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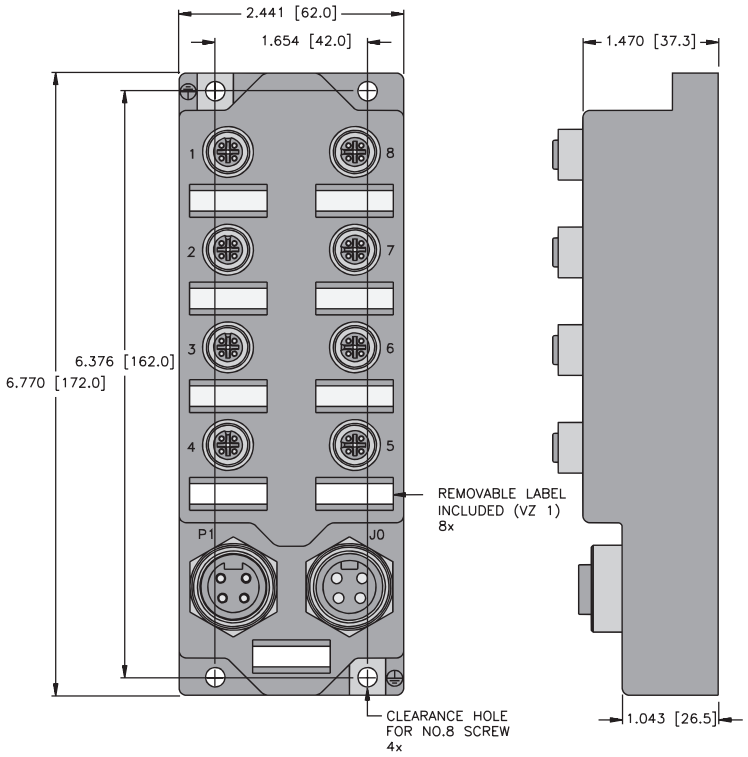
Specifications

Housing:	POM (Nylon)
Coupling Nut:	Nickel Plated CuZn
Contact Carrier:	Nylon
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

8-port

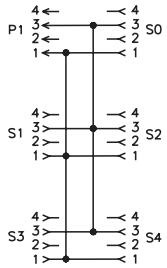
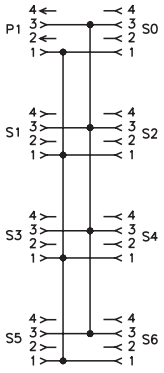
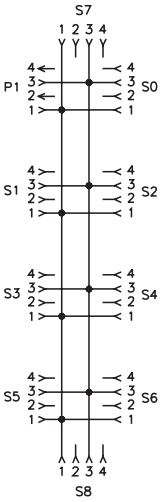


Pinouts

minifast				*eurofast*	
Male	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	**Female**	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	**Female**	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

AS-interface®, *minifast*® Passive Multiport Junctions

- **Rugged, Fully Encapsulated Enclosure**
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

Part Number	Specs	Application	Wiring Diagrams
JBBS-25-M414	No short-circuit protection	4-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** • Four ***minifast*** connectors for field devices	
JBBS-25-M613 **JBBS-25-M614**	No short-circuit protection	6-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** • Six ***minifast*** connectors for field devices	
JBBS-25-M814	No short-circuit protection	8-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** • Eight ***minifast*** connectors for field devices	

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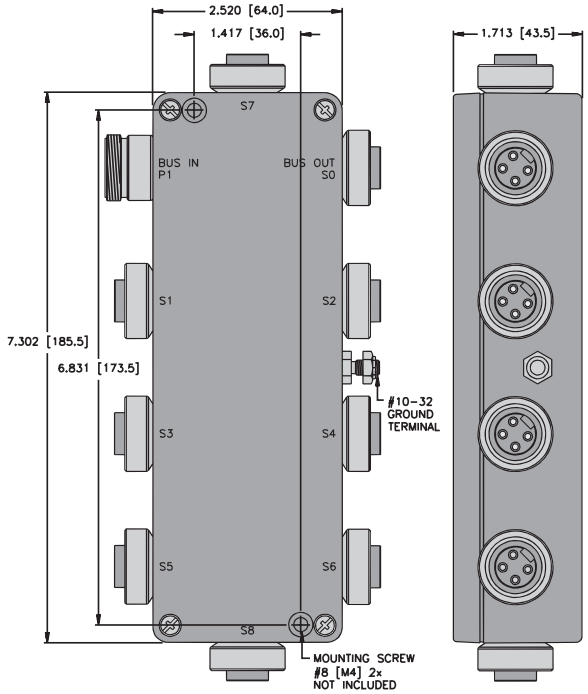
Specifications

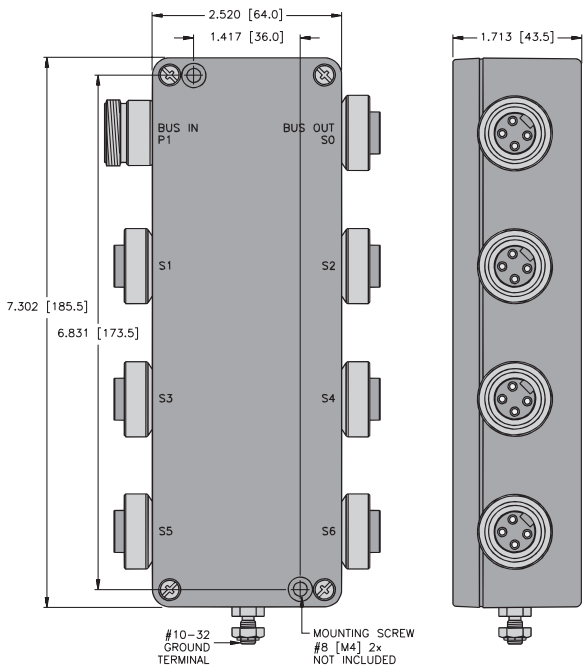
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

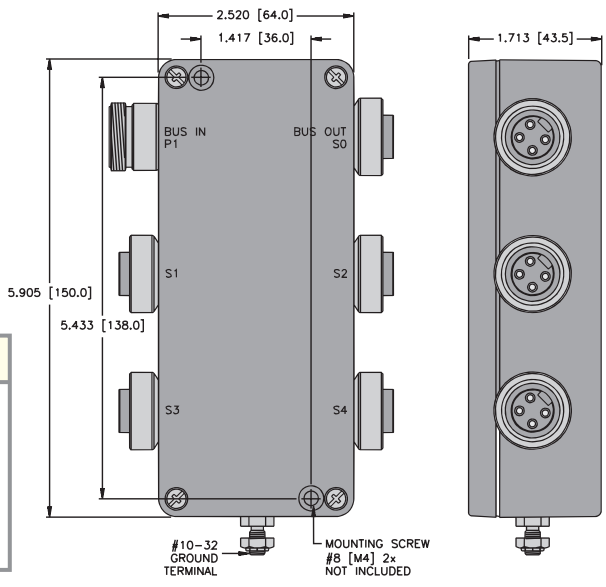
8-Port



6-Port



4-Port



Pinouts

minifast			
Male	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	**Female**	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

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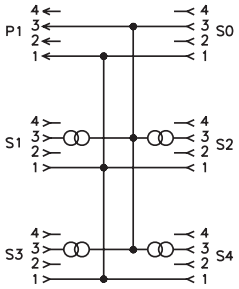
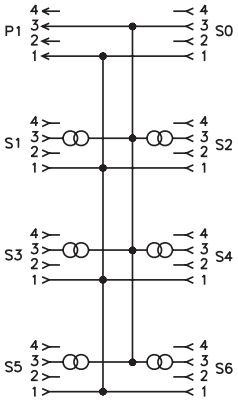
AS-interface®, *minifast*® Passive Multiport Junctions

- **Rugged, Fully Encapsulated Enclosure**
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

Part Number	Specs	Application	Wiring Diagrams
JBBS-25SC-M413	**Electrical** • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted	4-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** Four ***minifast*** connectors for field devices	
JBBS-25SC-M613	**Electrical** • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted	6-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** Six ***minifast*** connectors for field devices	

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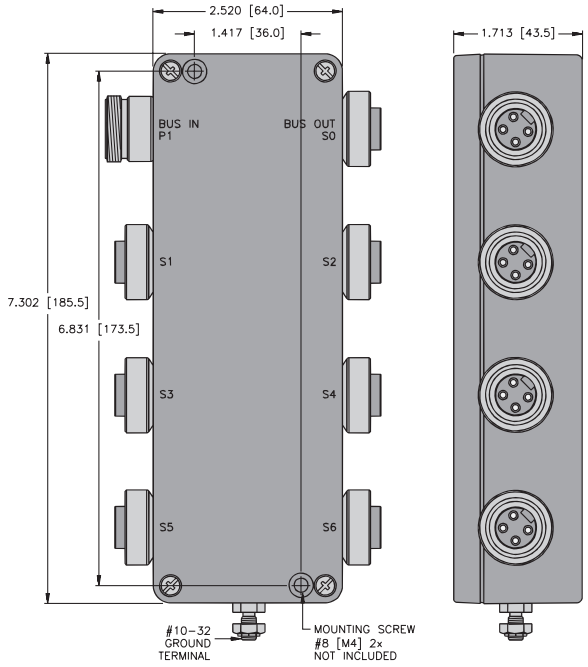
Specifications

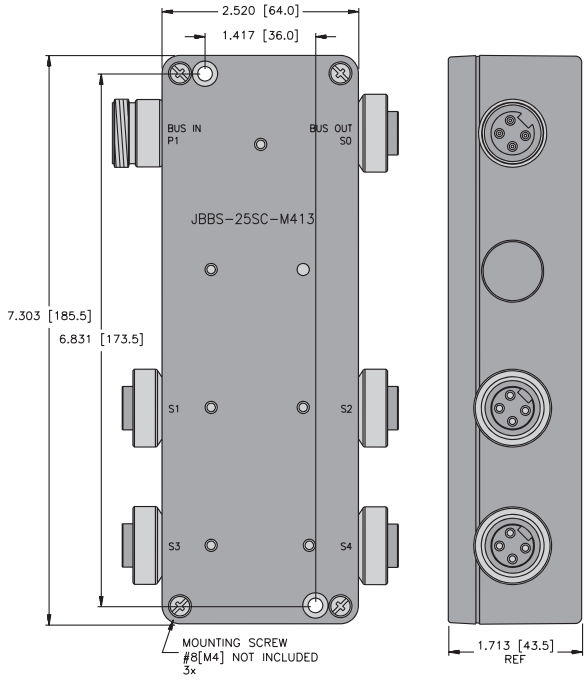
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

6-Port



4-Port



Pinouts

minifast			
Male	1 = BN (Voltage+) 2 = N/C 3 = BU (Voltage-) 4 = N/C	**Female**	1 = BN (Voltage+) 2 = N/C 3 = BU (Voltage-) 4 = N/C

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- **Rugged, Fully Encapsulated Enclosure**
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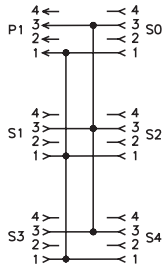
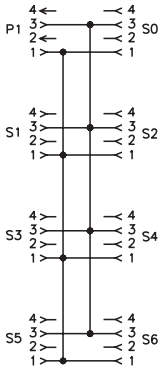
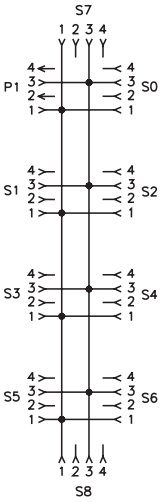
- **Suitable for Outdoor Applications**

Part Number	Specs	Application	Wiring Diagrams
JBBS-25-E413	No short-circuit protection	4-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Four ***eurofast*** connectors for field devices	
JBBS-25-E613	No short-circuit protection	6-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Six ***eurofast*** connectors for field devices	
JBBS-25-E813	No short-circuit protection	8-port junction • bus in/bus out connections (M12x1) ***eurofast*** • eight ***eurofast*** connectors for field devices	

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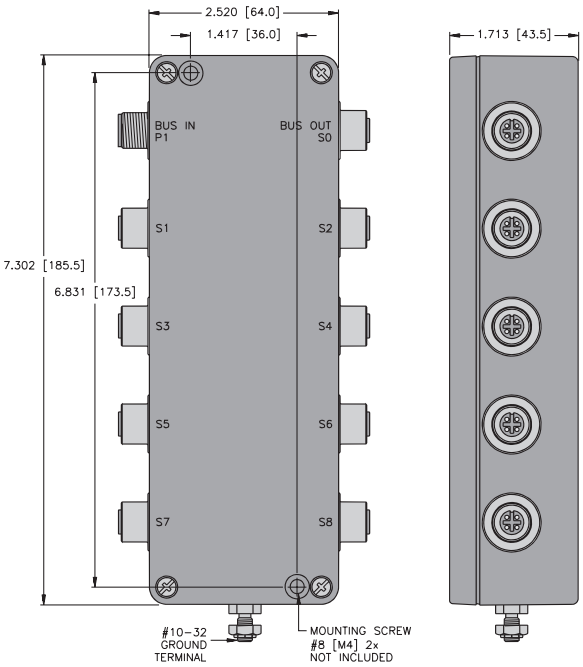
Specifications

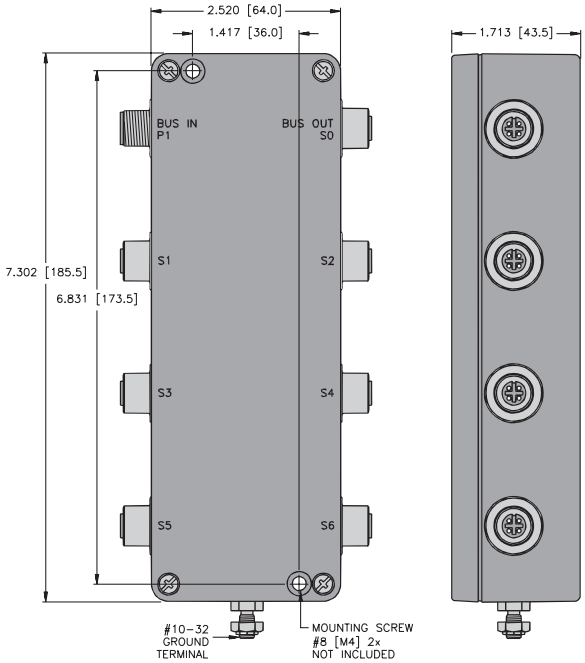
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

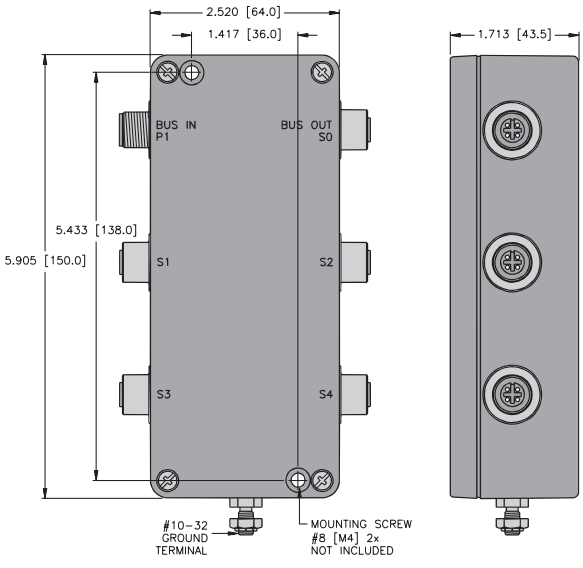
8-Port



6-Port



4-Port



Pinouts

eurofast			
Male	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	**Female**	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

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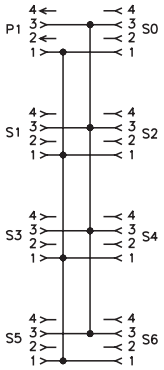
- **Rugged, Fully Encapsulated Enclosure**
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

Part Number	Specs	Application	Wiring Diagrams
JBBS-25-E623	No short-circuit protection	6-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Six ***eurofast*** connectors for field devices	

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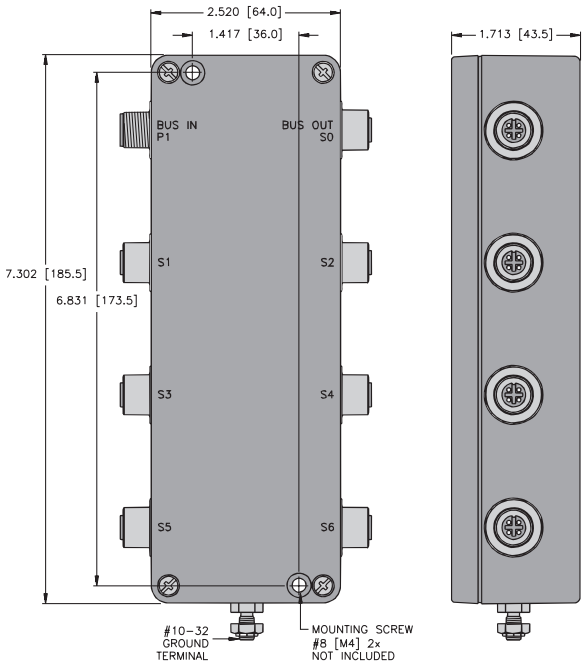
Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

6-Port



Pinouts

eurofast			
Male	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	**Female**	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

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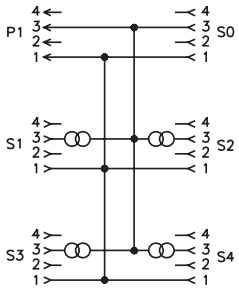
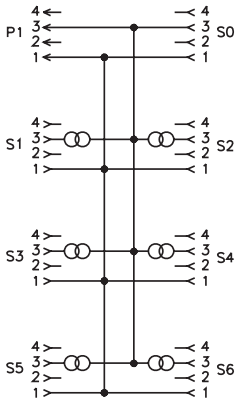
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

Part Number	Specs	Application	Wiring Diagrams
JBBS-25SC-E413	**Electrical** • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted	4-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** Four ***minifast*** connectors for field devices	
JBBS-25SC-E613	**Electrical** • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted	6-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** Six ***minifast*** connectors for field devices	

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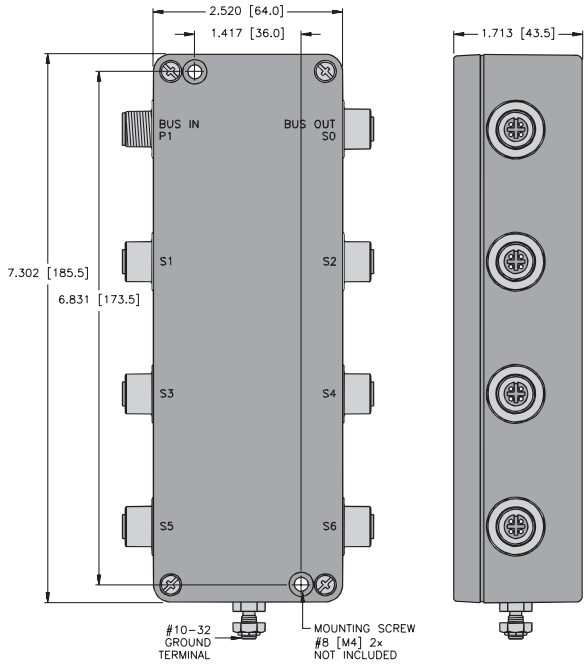
Specifications

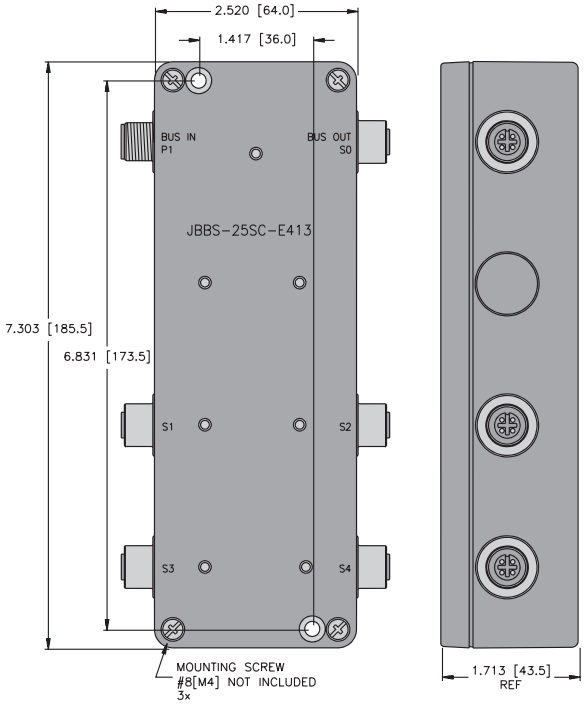
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

6-Port



4-Port



Pinouts

minifast			
Male	1 = BN (Voltage+) 2 = N/C 3 = BU (Voltage-) 4 = N/C	**Female**	1 = BN (Voltage+) 2 = N/C 3 = BU (Voltage-) 4 = N/C

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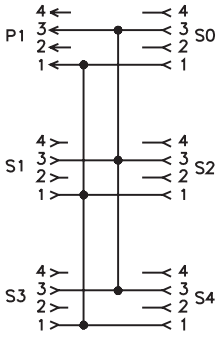
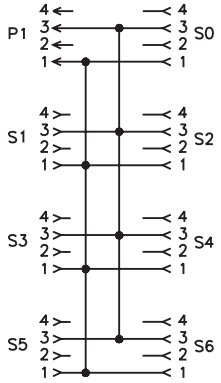
AS-interface®, *minifast*® Junction Tees

- **Indoor Use Only**
  (*for outdoor applications use JBBS family*)
- **Multi-port Junction Provides a Rugged Connection to Network Devices**
- **Bus-in/Bus-out Feature Eliminates Need for Splitter Tee**
- **Short-Circuit Protection Available**

Part Number	Specs	Application	Wiring Diagrams
JTBS-25-M433	No short-circuit protection	4-port Junction Tee • (7/8-16UN) ***minifast*** bus in/bus out connections • Four (7/8-16UN) ***minifast*** device ports • For nickel plated brass connectors change part number to JTBS 25SC-M434 • Short-circuit threshold: 280 mA	
JTBS-25-M633	No short-circuit protection	6-port Junction Tee • (7/8-16UN) ***minifast*** bus in/bus out connections • Six (7/8-16UN) ***minifast*** device ports • For nickel plated brass connectors change part number to JTBS 25SC-M634 • Short-circuit threshold: 280 mA	

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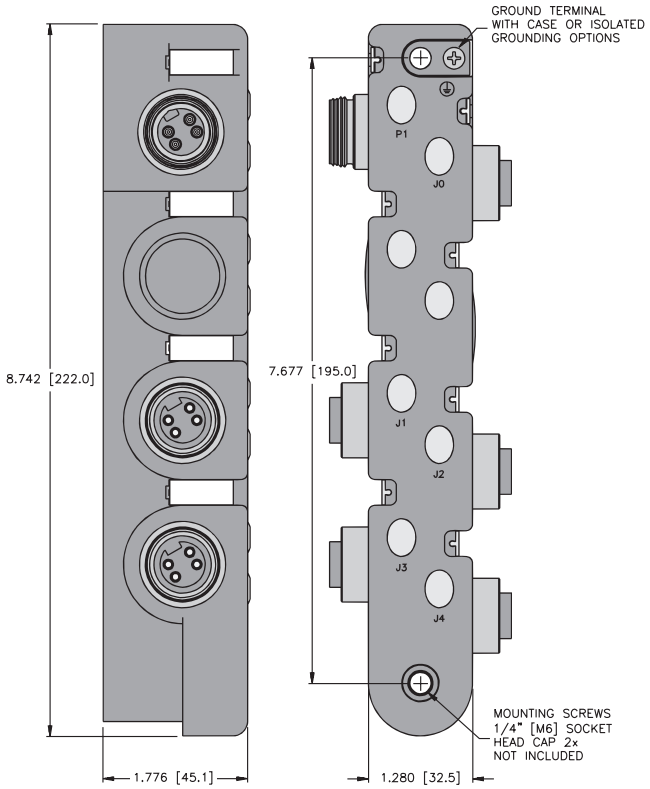
Specifications

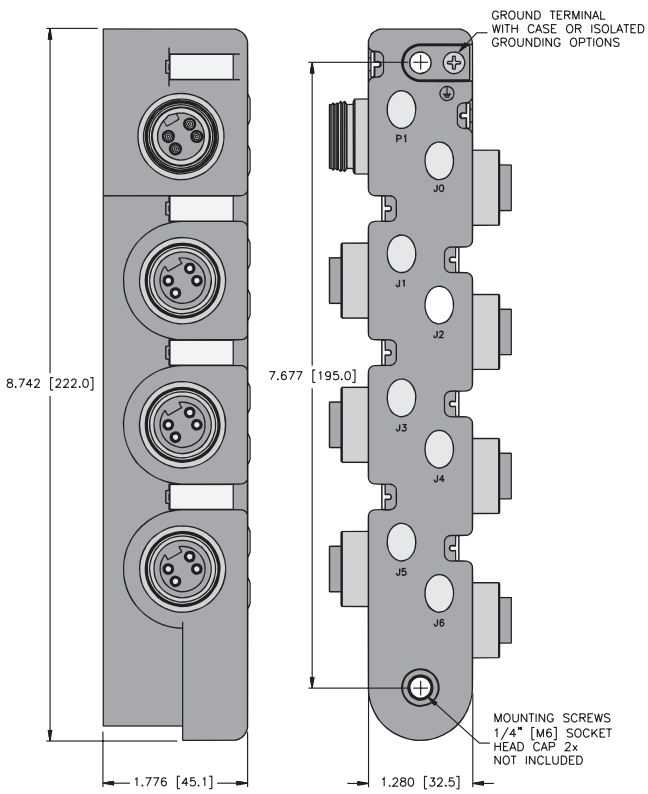
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6, 13 and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-30° to +80°C (-22° to +176°F)

Dimensions

4-port



6-port



Pinouts

minifast			
Male	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	**Female**	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

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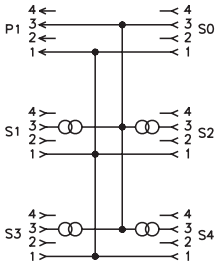
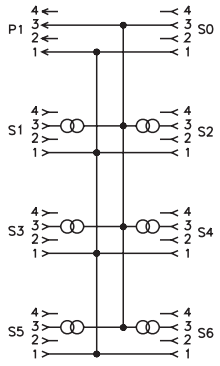
- **Bus-in/Bus-out Feature Eliminates Need for Splitter Tee**
- **Short-Circuit Protection Available**

Part Number	Specs	Application	Wiring Diagrams
JTBS-25SC-M433	**Electrical** • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted	4-port Junction Tee • (7/8-16UN) ***minifast*** bus in/bus out connections • Four (7/8-16UN) ***minifast*** device ports • For nickel plated brass connectors change part number to JTBS 25SC-M434 Short-circuit threshold: 280 mA	
JTBS-25SC-M633	**Electrical** • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted	6-port Junction Tee • (7/8-16UN) ***minifast*** bus in/bus out connections • Six (7/8-16UN) ***minifast*** device ports • For nickel plated brass connectors change part number to JTBS 25SC-M634 Short-circuit threshold: 280 mA	

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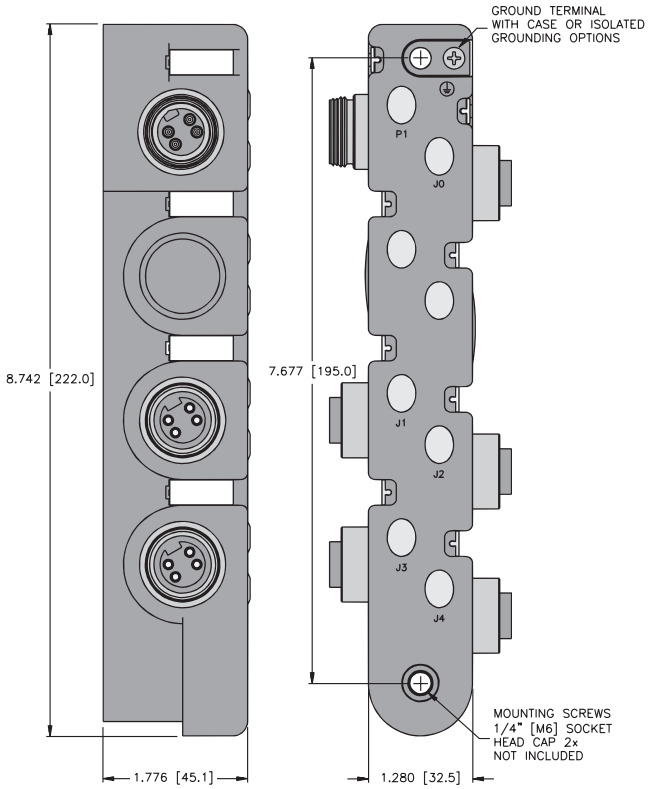
Specifications

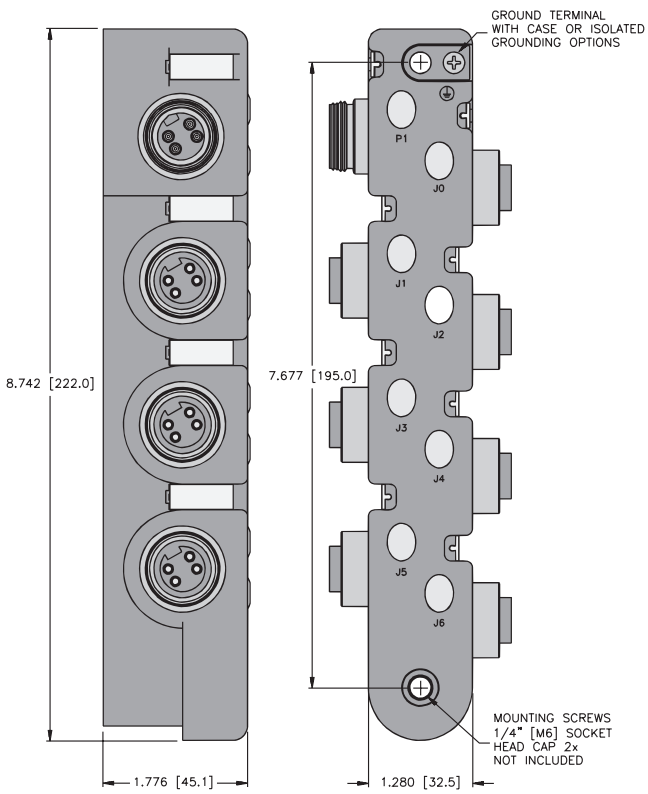
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6, 13 and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-30° to +80°C (-22° to +176°F)

Dimensions

4-port



6-port



Pinouts

minifast			
Male	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	**Female**	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

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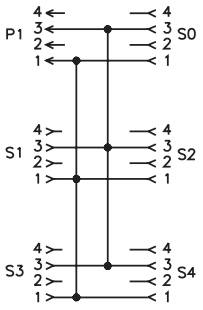
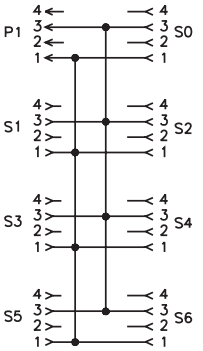
- **Short-Circuit Protection Available**

Part Number	Specs	Application	Wiring Diagrams
JTBS-25-E433	No short-circuit protection	4-port Junction Tee • (M12x1) ***eurofast*** bus in/bus out connections • Four (M12x1) ***eurofast*** device ports • For nickel plated brass connectors change part number to JTBS 25SC-E434 • Short-circuit threshold: 280 mA	
JTBS-25-E633	No short-circuit protection	6-port Junction Tee • (M12x1) ***eurofast*** bus in/bus out connections • Six (M12x1) ***eurofast*** device ports • For nickel plated brass connectors change part number to JTBS 25SC-E634 • Short-circuit threshold: 280 mA	

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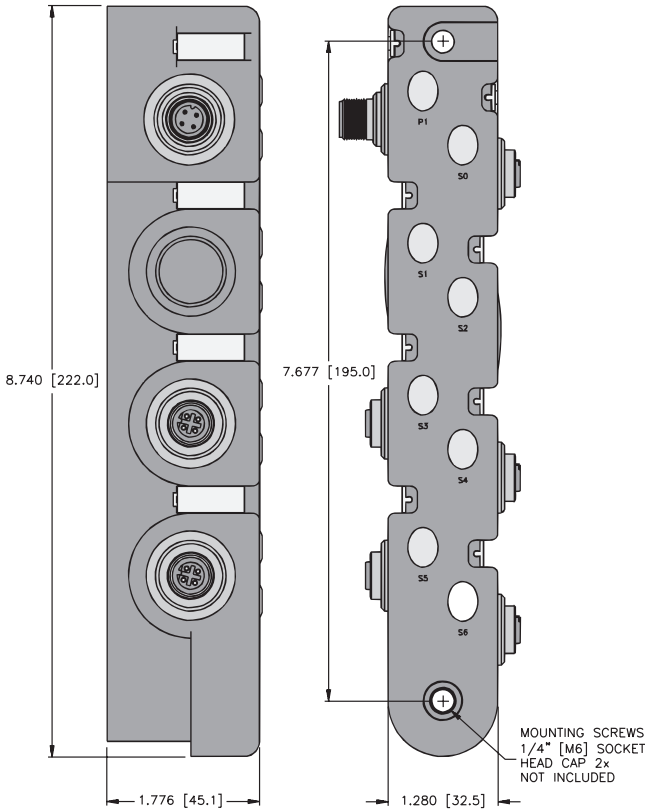
Specifications

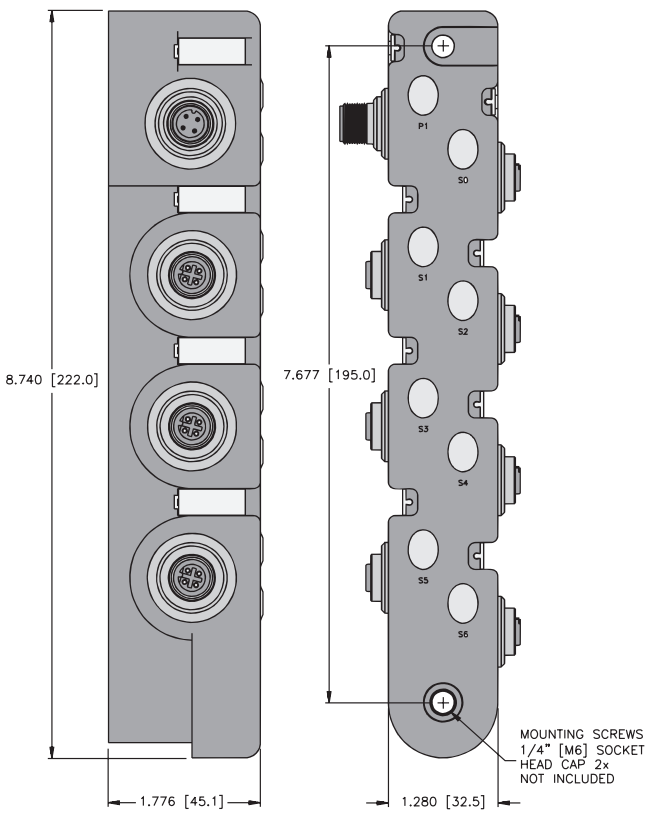
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

4-port



6-port



Pinouts

eurofast			
Male	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	**Female**	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

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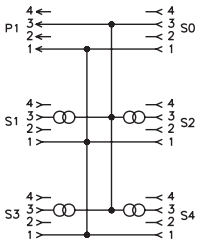
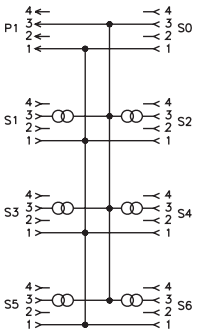
- **Short-Circuit Protection Available**

Part Number	Specs	Application	Wiring Diagrams
JTBS-25SC-E433	**Electrical** • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostic** • LED Indicators Power: Green = On Short-circuit: Red = Shorted	4-port Junction Tee • (M12x1) ***eurofast*** bus in/bus out connections • Four (M12x1) ***eurofast*** device ports • For nickel plated brass connectors change part number to JTBS 25SC-E434 Short-circuit threshold: 280 mA	
JTBS-25SC-E633	**Electrical** • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted	6-port Junction Tee • (M12x1) ***eurofast*** bus in/bus out connections • Six (M12x1) ***eurofast*** device ports • For nickel plated brass connectors change part number to JTBS 25SC-E634 Short-circuit threshold: 280 mA	

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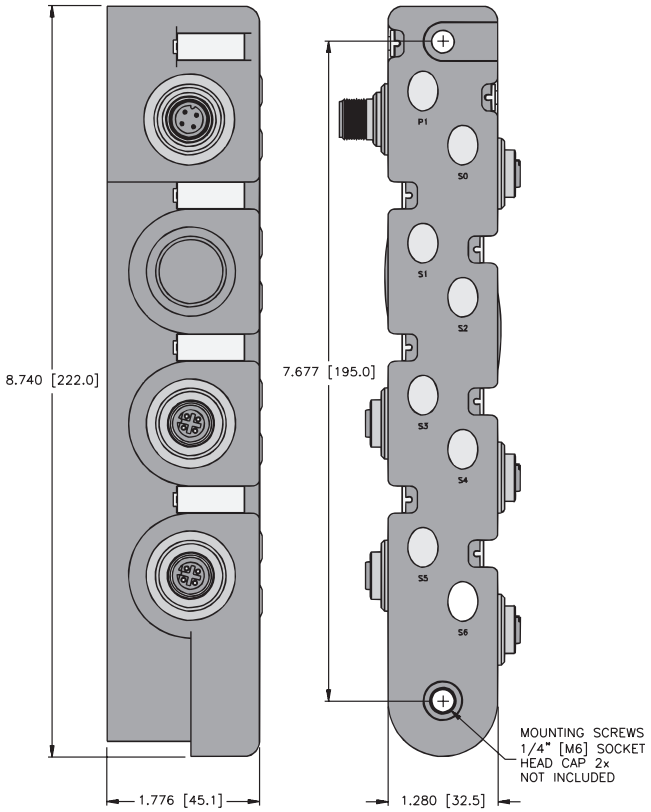
Specifications

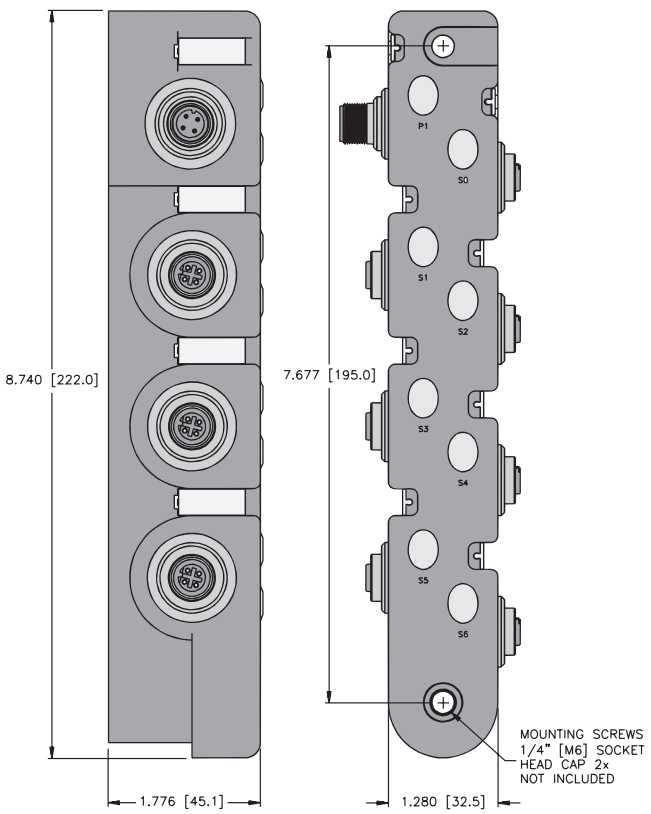
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

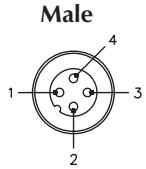
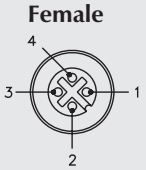
4-port



6-port



Pinouts

eurofast			
Male		**Female**	
	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C		1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

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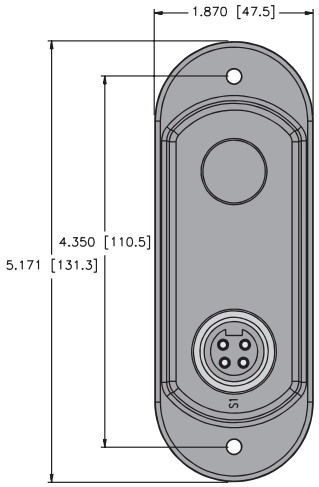
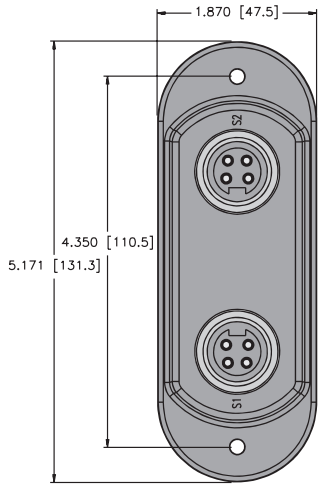
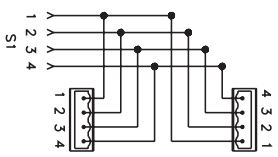
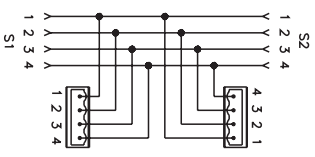
- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port

Housing	Part Number	Specs	Application	Pinout
	**BCA 25-M123**	Nylon Housing 300 V, 9 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (7/8-16UN) ***minifast*** connector *Crouse Hinds 3/4" Form 8, Mark 9 or equivalent	**Female**
	**BCA 25-M223**	Nylon Housing 300 V, 9 A -40° to +75°C		

1-port Wiring Diagram



2-port Wiring Diagram



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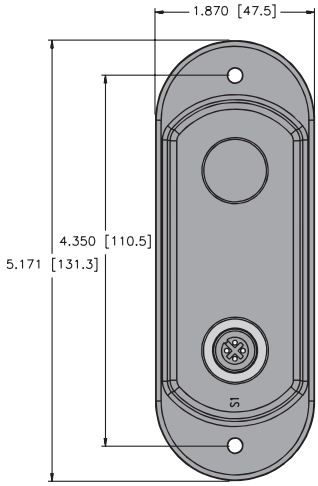
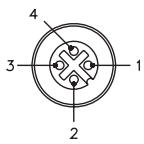
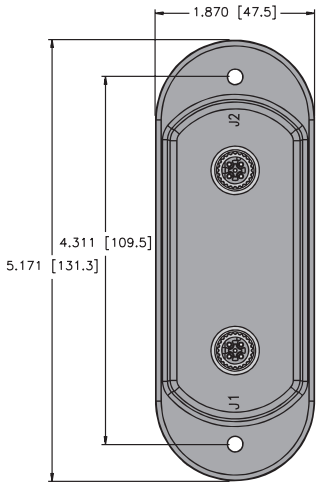
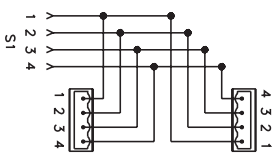
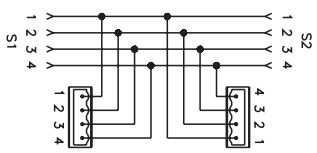
Housing	Part Number	Specs	Application	Pinout
	**BCA 25-E123**	Nylon Housing 250 V, 4 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (M12x1) ***eurofast*** connector *Crouse Hinds 3/4" Form 8, Mark 9 or equivalent	**Female** 
	BCA 25SC-E123	**Electrical** • Short-circuit protection: 280 mA • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostics** • LED indicators Power: Green = On Short-circuit: Red = Shorted		
	**BCA 25-E223**	Nylon Housing 250 V, 4 A -40°C to +75°C		
	BCA 25SC-E223	**Electrical** • Short-circuit protection: 280 mA • Open circuit voltage: 33 VDC • Current consumption: 11 mA **Diagnostics** • LED indicators Power: Green = On Short-circuit: Red = Shorted		

1-port Wiring Diagram



2-port Wiring Diagram



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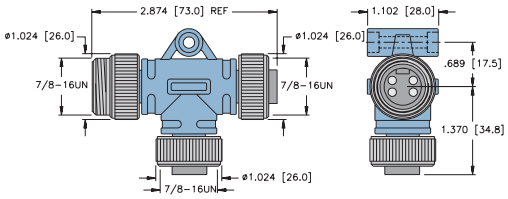
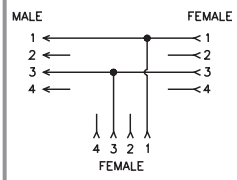
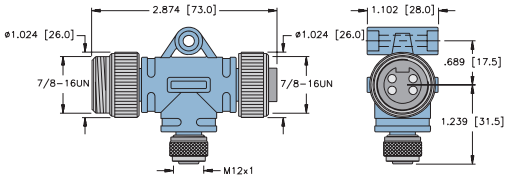
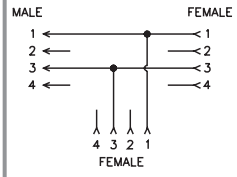
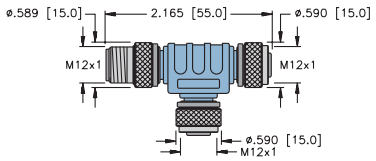
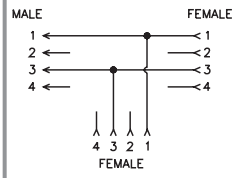
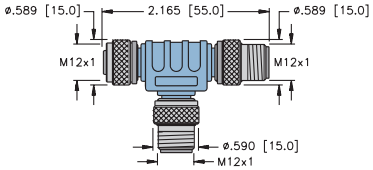
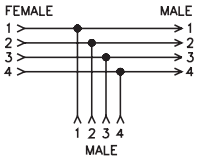
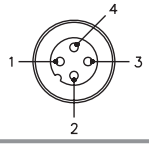
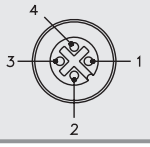
AS-interface®, Tees

- Creates a Drop or Branch from the Main Bus Line
- Available in *minifast*® or *eurofast*® Bus or Drop Lines

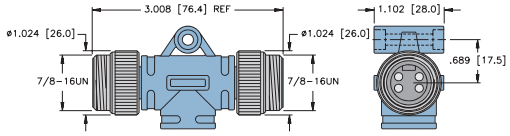
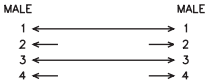
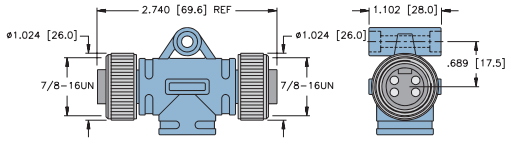
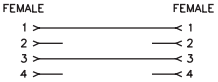
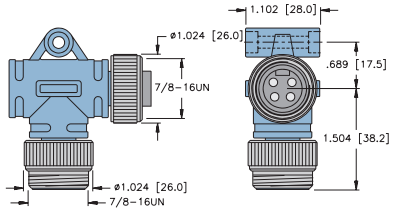
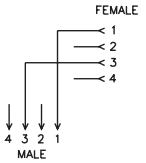
Housing	Part Number	Specs	Application	Wiring Diagrams
	**RSV 2RKV 25**	TPU (Polyurethane) Stainless Steel 250 V, 4 A (***eurofast***), 9 A (***minifast***) -40° to +75°C	***minifast*** Tee • ***minifast*** drop connector	
	**RSV FKV RKV 25**		***minifast*** Tee • ***eurofast*** drop connector	
	**RSCV 2RKCV 25**		***eurofast*** Tee • ***eurofast*** female drop connector	
	**RKC 2RSC 25**		***eurofast*** Tee • ***eurofast*** male drop connector • Nickel Plated Brass	

minifast		Pinouts	*eurofast*	
Male	Female		Male	Female
		1. Brown (+ Voltage) 2. N/C 3. Blue (- Voltage) 4. N/C		

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com

AS-interface®, Gender Changers and Elbow Connectors

- **Allows Quick and Easy Change from Male to Female *minifast*® Connectors**

Housing	Part Number	Specs	Application	Wiring Diagrams
	**RSM RSM 25**	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	***minifast*** Male Gender Changer • Female cordset to male receptacle	
	**RKM RKM 25**		***minifast*** Female Gender Changer • Male cordset to female receptacle	
	**WSM RKM 25**		***minifast*** Elbow • Right angle male to female connector	

minifast	Pinouts	*minifast*
Male	1. Brown (+ Voltage) 2. N/C 3. Blue (- Voltage) 4. N/C	**Female**

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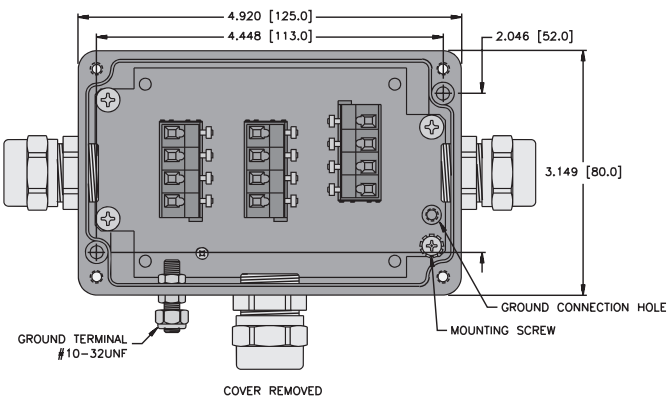
AS-interface®, Field Wireable Tees

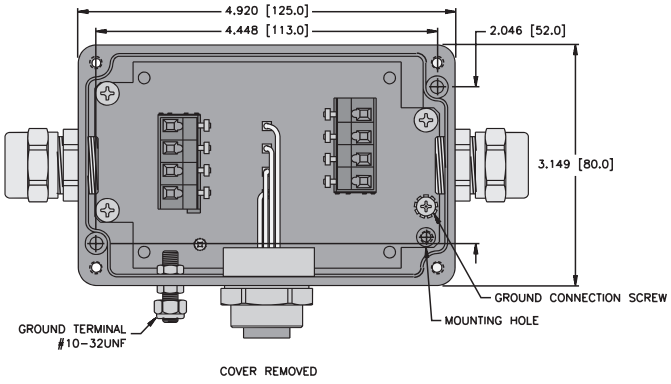
- A Hybrid Connection System Offering Reliable Connections on the Short Drops and Ease of Installation on the Long Trunk Runs
- Features Standard *minifast*® Connector for the Drop Connection and Terminal Connectors on the Trunk Connections

Housing	Part Number	Specs	Application	Pinout
See Drawing 1	SPTT1-A25	Anodized Aluminum 300 V, 9 A -40° to +75°C NEMA 1, 3, 4, 6P and IEC IP 68	Field wireable terminals and (7/8-16UN) ***minifast*** connector on drop connection	**Female**
See Drawing 2	SPTTM13-A25			

1



2



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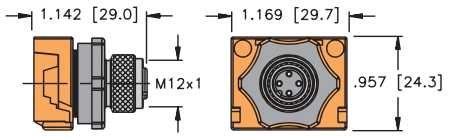
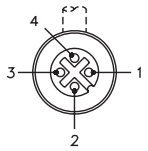
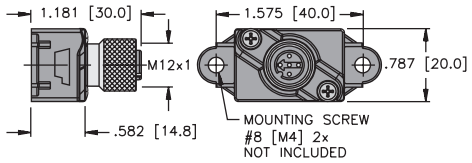
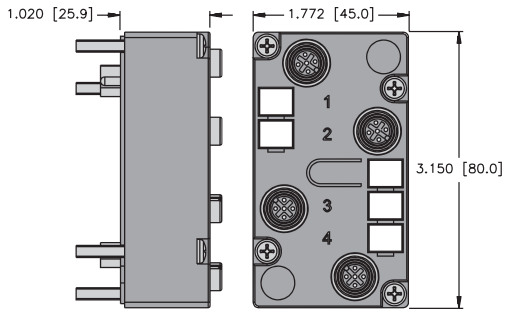
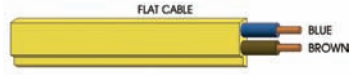
AS-interface®, *eurofast*® Flat Cable Adapter

- **Allows the Mixing of Standard AS-I Flat Cable with *eurofast* Round Cable in Same System**
- **May be Needed when Going from a Dry to a Wet Environment or an Area Where Better Sealing and Rugged Connectors are Required**

Housing	Part Number	Specs	Pinout
	**ASI-PM-1 BW1238**	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	**Female** 
	**ASI-PM-1 BW1239**		
	**ASI-PM 41**		



Type	Approvals	Data Pair		Outer Jacket	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	
250 105°C 300 Volts		2/18 AWG BU/BN	6.5 Ohms TPE-S	TPE Yellow Flat	RB21603-*M 40 lbs.
251 105°C 300 Volts		2/18 AWG BU/BN	6.5 Ohms TPE-S	TPE Black Flat	RB21605-*M 40 lbs.
253 105°C 300 Volts	**NEC ITC** PLTC **CEC** [CMG]	2/18 AWG BU/BN	6.5 Ohms PVC	PVC Light Grey Flat	RB50782-*M 42 lbs.
253G 105°C 300 Volts	**NEC** PLTC **CEC** AWM I/II A/B FT4	16 AWG BU/BN	4.1 Ohms PVC	TPE Grey Flat	RB51240-*M 42 lbs.
253BK 105°C 300 Volts	NEC PLTC **CEC** AWM I/II A/B FT4	16 AWG BU/BN	4.1 Ohms PVC	TPE Black Flat	RB51241-*M 42 lbs.
253Y 105°C 300 Volts	NEC PLTC **CEC** AWM I/II A/B FT4	16 AWG BU/BN	4.1 Ohms PVC	TPE Yellow Flat	RB51242-*M 42 lbs.

* Indicates length in meters.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

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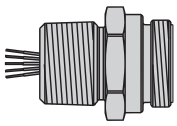
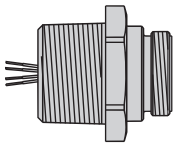
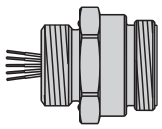
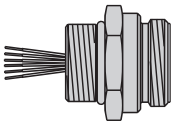
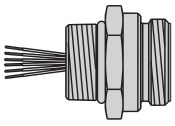
AS-interface®, *minifast*® Male Receptacles

- Provides Quick Connection to Field Devices or Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads
- (7/8-16UN) *minifast* Connection

Housing	Part Number	Specs	Application	Pinouts	
13 	RSF 25-*M/14.5	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	1/2-14NPT full length threads	1. BN 2. N/C 3. BU 4. N/C	Male
15 	RSF 25-*M/14.75		3/4-14NPT full length threads		
14 	RSF 25-*M/M20		M20x1.5 threads		
16 	RSF 25-*M		1/2-14NPSM threads		
17 	RSF 25-*M/NPT		1/2-14NPT modified length threads		

See page N39 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.
For locknuts to be included, add "W/LN" to the end of the part number.

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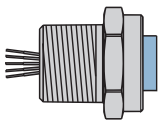
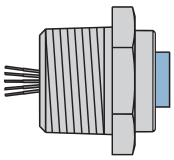
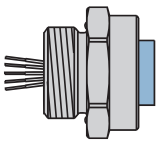
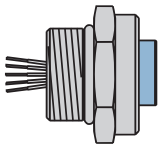
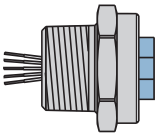
AS-interface®, *minifast*® Female Receptacles

- **Provides Quick Connection to Field Devices or Enclosures**
- **Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads**
- **(7/8-16UN) *minifast* Connection**

Housing	Part Number	Specs	Application	Pinouts	
18 	RKF 25-*M/14.5	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	1/2-14NPT full length threads	1. BN 2. N/C 3. BU 4. N/C	Female
20 	RKF 25-*M/14.75		3/4-14NPT full length threads		
19 	RKF 25-*M/M20		M20x1.5 threads		
21 	RKF 25-*M		1/2-14NPSM threads		
22 	RKF 25-*M/NPT		1/2-14NPT modified length threads		

See page N40 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.
For locknuts to be included, add "W/LN" to the end of the part number.

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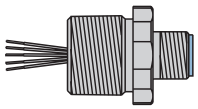
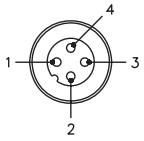
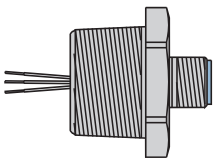
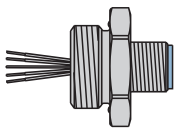
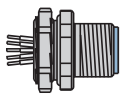
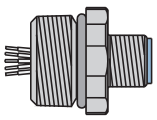
AS-interface®, *eurofast*® Male Receptacles

- **Mounted for Quick Connection to Enclosures**
- **(M12x1) *eurofast* Connectors**

Housing	Part Number	Specs	Application	Pinout	
33 	FS 25-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	1. BN 2. N/C 3. BU 4. N/C	Male 
35 	FS 25-*M/14.75		3/4-14NPT full length threads		
34 	FS 25-*M/M20		M20x1.5 threads		
36 	FS 25-*M		PG 9 threads		
37 	FS 25-*M/NPT		1/2-14NPT modified length threads		

See page N41 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.

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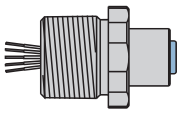
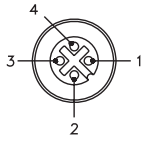
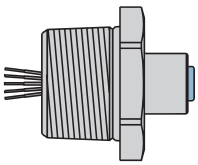
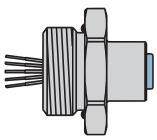
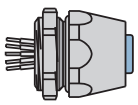
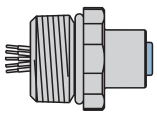
AS-interface®, *eurofast*® Female Receptacles

- **Mounted for Quick Connection to Enclosures**
- **(M12x1) *eurofast* Connectors**

Housing	Part Number	Specs	Application	Pinouts	
28 	FK 25-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	1. BN 2. N/C 3. BU 4. N/C	Female 
30 	FK 25-*M/14.75		3/4-14NPT full length threads		
29 	FK 25-*M/M20		M20x1.5 threads		
31 	FK 25-*M		PG 9 threads		
32 	FK 25-*M/NPT		1/2-14NPT modified length threads		

See page N42 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.

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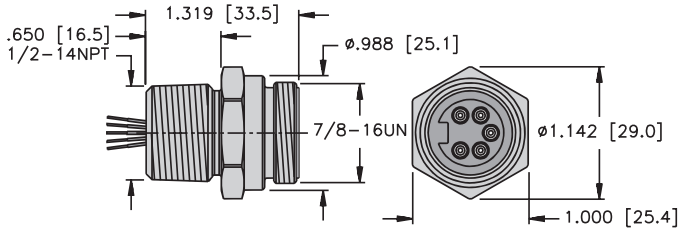
minifast® Male Receptacles

13



RSF .. 14.5 **Page N35**

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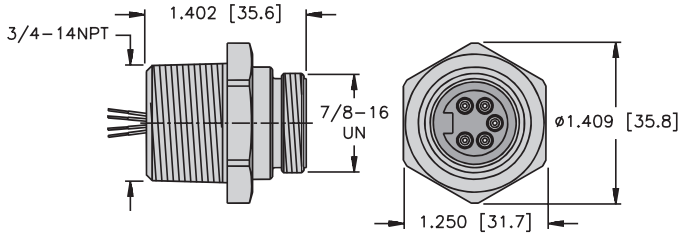
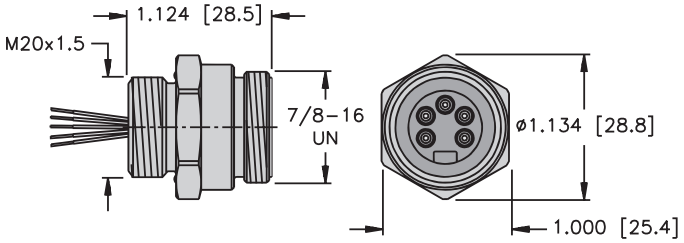


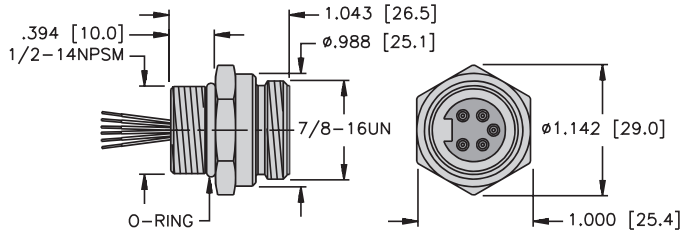
RSF .. 14.75 **Page N35**

14



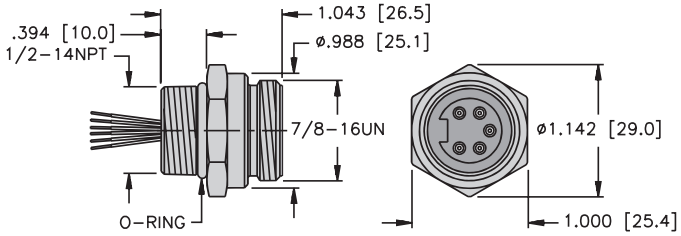
RSF .. M20 **Page N35**

16



RSF .. **Page N35**

17



RSF .. NPT **Page N35**

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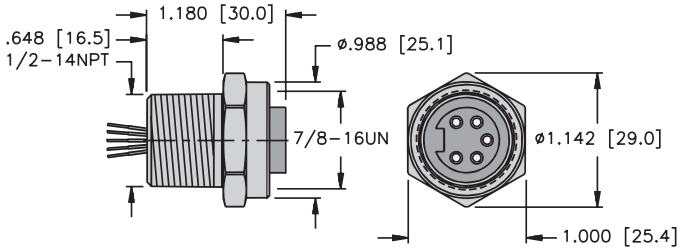
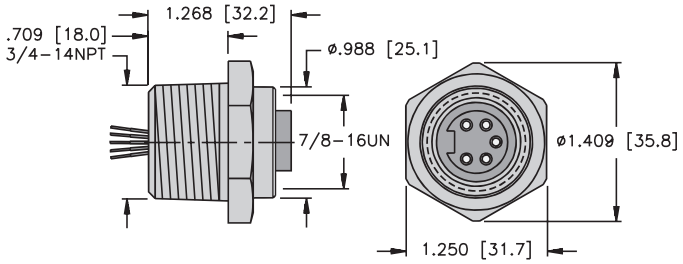
minifast® Female Receptacles

18



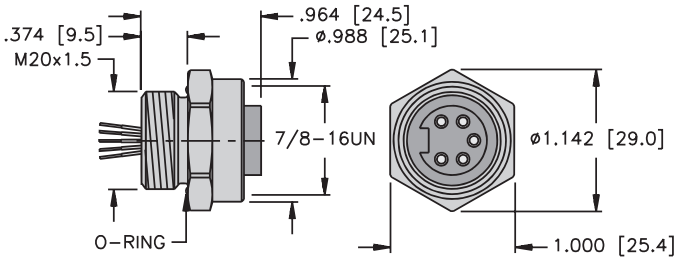
RKF .. 14.5 **Page N36**

20



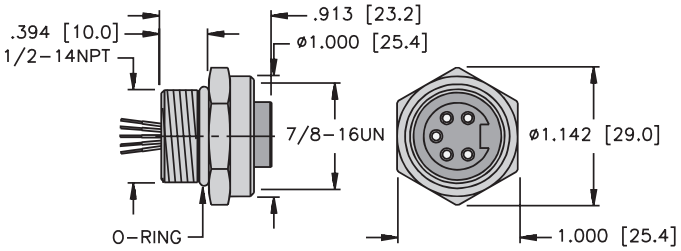
RKF .. 14.75 **Page N36**

19



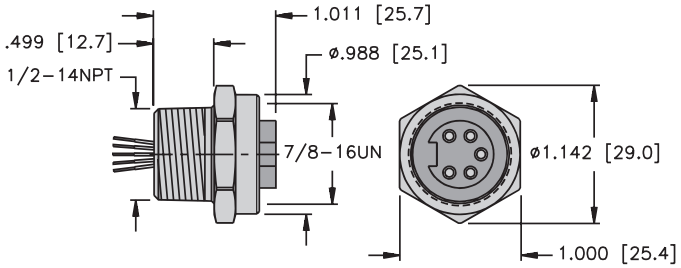
RKF .. M20 **Page N36**

21



RKF .. **Page N36**

22



RKF .. NPT **Page N36**

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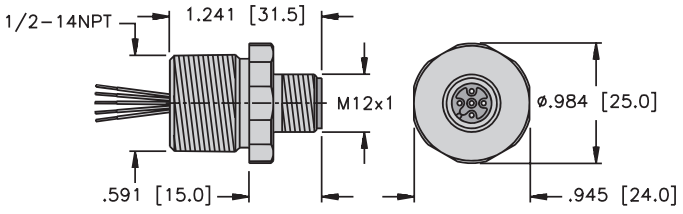
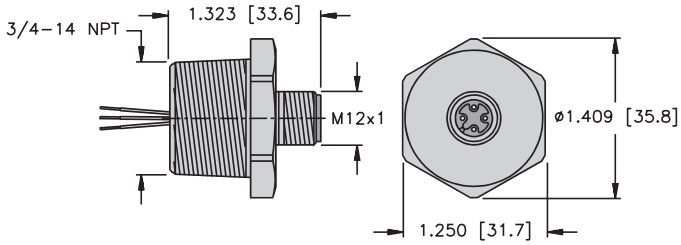
eurofast® Male Receptacles

23



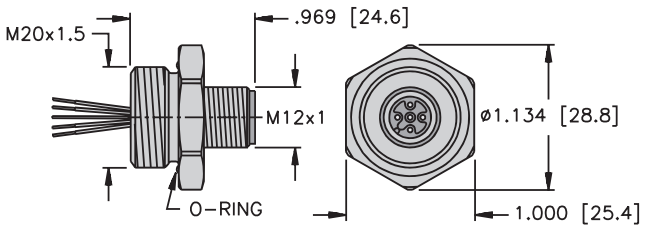
FS .. 14.5 **Page N37**

25



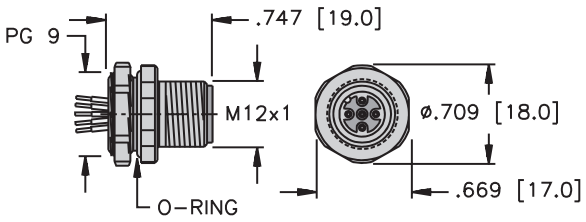
FS .. 14.75 **Page N37**

24



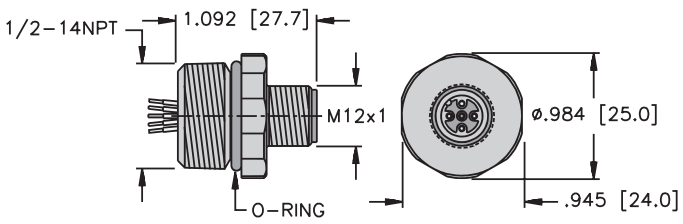
FS .. M20 **Page N37**

26



FS .. **Page N37**

27



FS .. NPT **Page N37**

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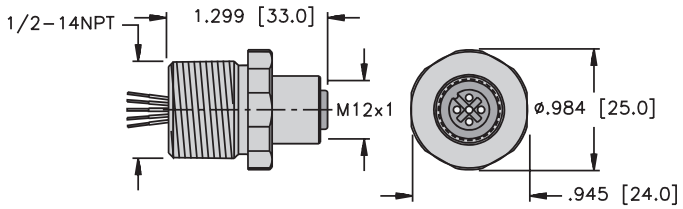
eurofast® Female Receptacles

28



FK .. 14.5 **Page N38**

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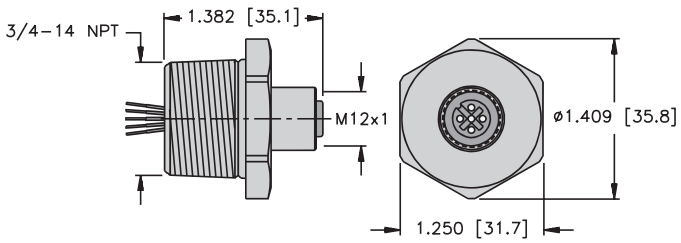

FK .. 14.75 **Page N38**

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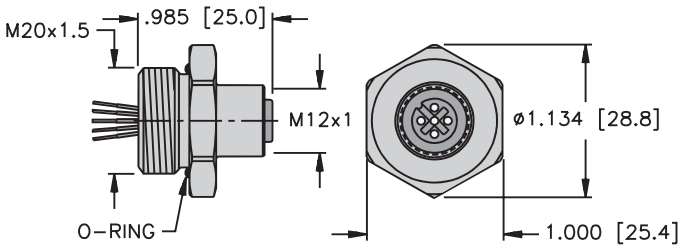

FK .. M20 **Page N38**

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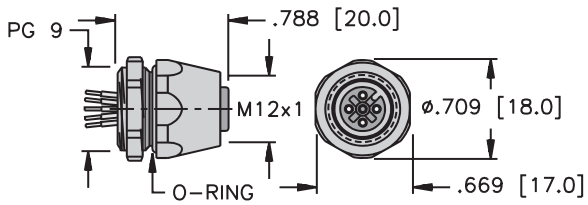

FK .. **Page N38**

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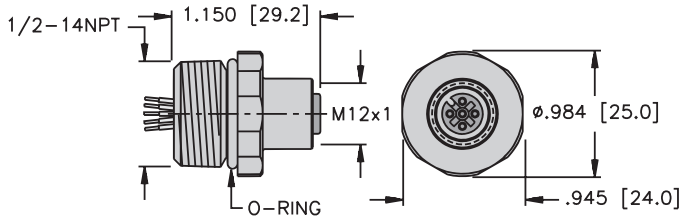
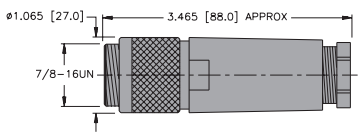
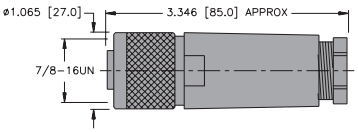


FK .. NPT **Page N38**

AS-interface®, *minifast*® Field Wireable Connectors

- **Screw Terminals Accept up to 16 AWG Conductors**

Housing	Part Number	Specs	Application	Pinouts
	**BS 4149-0/9**	Glass filled nylon PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A	Mates with all 4-pin ***minifast*** cordsets and receptacles	**Male**
	BS 4149-0/13.5	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter 85°C 250 V, 9 A		
	**B 4149-0/9**	Glass filled nylon PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A		**Female**
	B 4149-0/13.5	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter 85°C 250 V, 9 A		

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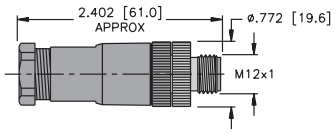
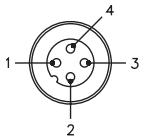
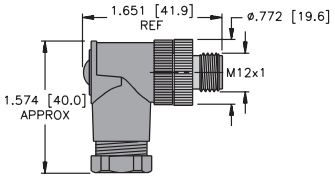
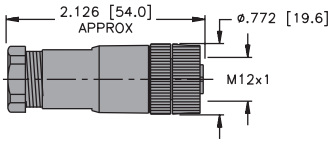
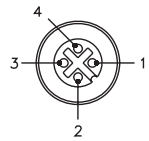
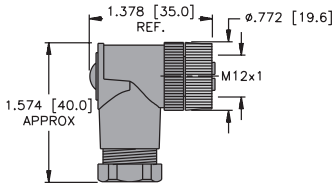
AS-interface®, *eurofast*® Field Wireable Connectors

- **Screw Terminals Accept up to 18 AWG Conductors**

Housing	Part Number	Specs	Application	Pinouts
	**BS 8141-0/PG9**	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 125 V, 4 A	Mates with 4-pin ***eurofast*** cordsets and receptacles	**Male** 
	**BS 8241-0/PG9**	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 125 V, 4 A		
	**B 8141-0/PG9**	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 250 V, 4 A		**Female** 
	**B 8241-0/PG9**	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 250 V, 4 A		

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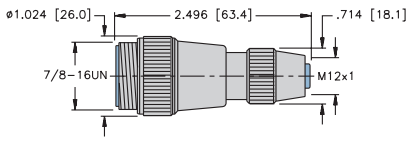
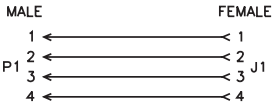
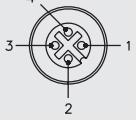
AS-interface®, Gender Changer

- **Allows Quick and Easy Change from Male to Female and (7/8-16UN) *minifast*® to (M12x1) *eurofast*® Connectors**

Housing	Part Number	Specs	Application	Wiring Diagram
	RSM 25-FK 4.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40°C to +75°C	Female ***eurofast***, male ***minifast***, 4-pin	

Pinouts

minifast	*eurofast*
Male	Female
	

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Notes:

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